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ABSTRACT

This collection is designed to help educators find outstanding curricula, multimedia resources, and other educational materials that can enhance biodiversity teaching in a variety of settings. The curriculum materials were reviewed by teams comprised of classroom teachers, content experts, and environmental educators. The materials listed in this compendium received the highest ratings of those reviewed. The six characteristics used to evaluate the curriculum materials include fairness and accuracy, depth, emphasis on skills building, action orientation, instructional soundness, and usability. There are two major parts to this collection. The first part highlights 47 of the best supplementary curricula that focus on some aspect of biodiversity. Each entry includes a summary of the curriculum and information about grade levels, subject areas, author, publisher, and price. Each entry also includes comments specific to the six key characteristics and a few quotations from the reviewers' evaluation sheets that help summarize the review. The second part of the collection contains an annotated bibliography that features general background information, children's books and magazines, multimedia resources, web sites, and a variety of other resources focusing on biodiversity issues. Topics covered include wildlife, endangered species, wetlands, global warming, and marine biology. (PVD)

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THE BIODIVERSITY COLLECTION

A Review of Biodiversity Resources for Educators

ED 419 680

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A Review of Biodiversity Resources for Educators

THE BIODIVERSITY COLLECTION

The Biodiversity Collection–A Review of Biodiversity Resources for Educators

is a cooperative effort of World Wildlife Fund (WWF)
and the North American Association for Environmental Education (NAAEE),
with support from Eastman Kodak Company and the
National Fish and Wildlife Foundation.

World Wildlife Fund

World Wildlife Fund works in more than 100 countries worldwide to protect the abundance and diversity of life on Earth. WWF is action-oriented and supports individuals and institutions that carry out practical, well-planned, and scientifically based conservation projects. It also seeks to strengthen conservation leadership and works with citizens worldwide to foster sustainable use of biological resources. WWF's work is grounded in solid science and shaped by an understanding that addressing human needs is the key to all successful long-term conservation.

Windows on the Wild®

The Biodiversity Collection is part of WWF's national environmental education program *Windows on the Wild*, or *WOW*. The goal of *WOW* is to educate people of all ages about biodiversity issues and stimulate critical thinking, discussion, and responsible action on behalf of the environment. *WOW* takes advantage of WWF's unique expertise in addressing biodiversity issues by incorporating current data from projects around the world and by drawing from the many science, development, education, and conservation organizations; government agencies; and individuals that work closely with WWF to maintain and enhance the Earth's biodiversity.

North American Association for Environmental Education

The North American Association for Environmental Education is a network of professionals working in the field of environmental education throughout North America and in over 45 countries around the world. For more than 25 years, NAAEE has promoted environmental education and supported the work of environmental educators. NAAEE takes a positive, cooperative, and nonconfrontational approach in dealing with education about environmental issues. NAAEE's members believe that education is the key to ensuring a healthy, sustainable environment and to improving the quality of life on Earth.

Support for this project comes from Eastman Kodak Company and the National Fish and Wildlife Foundation.
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Welcome To "The Biodiversity Collection"

If you want to incorporate biodiversity education into your teaching, "The Biodiversity Collection" might be just what you need. A compendium of exemplary environmental education resources that focus on biodiversity, this guide is designed to help educators find outstanding materials that can enhance biodiversity teaching in a variety of settings.

Although we know this guide doesn't include all the great resources that are out there, it does highlight 47 of the best curriculum materials we could find, along with other resources that can help enhance environmental education. The guide also includes a listing of helpful web sites and other suggestions for where to look for more information about biodiversity.

We'd like to give special thanks to the more than 100 teachers, curriculum developers, scientists, evaluation specialists, environmental educators, business and industry representatives, and other experts who helped review the curriculum materials included in this guide. We also want to thank Bora Simmons, Professor of Curriculum and Instruction at Northern Illinois University and Director of the National Project for Excellence in Environmental Education; Ed McCrea, Executive Director of the North American Association for Environmental Education; and Kathleen Pickering, former Director of Conservation Education at the National Fish and Wildlife Foundation for their support and leadership on this project. In addition, we'd like to thank Nancy Baron for her initial insights into how we might pull this together, and Randy Champeau, Director of the Wisconsin Center for Environmental Education at the University of Wisconsin, Stevens Point, for his vision and support in getting this project off the ground.

If you have any suggestions for future editions, please complete the feedback forms at the end and let us know what you think.

Good luck with your education programs!

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Table Of Contents

INTRODUCTION

Introducing *The Biodiversity Collection–Resources for Educators* 4

Why Biodiversity? 4

The Environmental Education Process 4

Picking the Best–What Was the Process? 5

The Review Criteria 6

The Review Process 7

Using *The Biodiversity Collection* 8

CURRICULUM RESOURCE REVIEWS

A Child's Place in the Environment, Unit 3: Preserving and Restoring Ecosystems 10

Activities for the Changing Earth System 12

Adaptations (Regional Environmental Education Program–REEP) 14

Alaska's Ecology 16

Alberta's Threatened Wildlife 18

Animal Tracks 20

Backyard Biodiversity & Beyond 22

Biodiversity Basics–Exploring the Web of Life 24

Biodiversity: Understanding the Variety of Life 26

Biodiversity Works for Wildlife. You Can Too! 28

Biological Diversity Makes a World of Difference 30

Bottle Biology 32

Connections: The Living Planet 34

Conservation Biology 36

Eco-Inquiry: A Guide to Ecological Learning Experiences 38

Ecological Citizenship 40

Ecology for All Ages: Discovering Nature through Activities for Children and Adults 42

Economics and the Environment 44

Eco Sense: An Economic Environmental Learning Kit 46

Endangered Species 48

Environmental Education Module on Biological Diversity for Secondary Education 50

Environomics: Exploring the Links Between the Economy and the Environment 52

Global Environmental Change Series 54

Global Environmental Education Resource Guide 56

Global Issues in the Middle School 58
Global Systems Science Series 60
Global Warming and the Greenhouse Effect 62
Habitat and Biodiversity 64
Heath Environmental Literacy Program 66
Mud, Muck, and Other Wonderful Things 68
Ocean News 70
Our Oceans, Ourselves: Marine Biodiversity for Educators 72
Our Only Earth Series: A Curriculum for Global Problem Solving 74
Population Reference Bureau, Inc 76
Project Learning Tree 78
Project WET Curriculum and Activity Guide 80
Project WILD 82
Ranger Rick's NatureScope Series 84
Relationships of Living Things, Macmillan/McGraw-Hill Science 86
Science-Technology-Society: Preparing for Tomorrow's World 88
Teacher's Guide to World Resources: Biodiversity 90
Threatened and Endangered Animals: An Extended Case Study 92
What Is It? A Guide to Biological Identification 94
Wildlife for the Future 96
WOW! The Wonders of Wetlands 98
Zero Population Growth 100
Zoobooks: Exploring Ocean Ecosystems 102

APPENDIX

Resource Matrix--an index of resources by grade levels, subjects, and topics 104
Additional Resources 106
- General Background 107
- Children's Books and Magazines 107
- Multimedia Resources 109
- Biodiversity-Related World Wide Web Sites 111
- Other Curriculum Resources 112

Index of Authors, Editors, and Publishers 114
Feedback Form 116

Introducing *The Biodiversity Collection–Resources for Educators*

he Biodiversity Collection is designed to help educators find outstanding curricula, multimedia resources, and other educational materials that can enhance biodiversity teaching in a variety of settings. We hope these resources will help teachers, naturalists, zoo and aquarium educators, museum educators, university professors, community educators, and others plan, develop, and implement creative and effective lesson plans and programs that address biodiversity issues.

The Biodiversity Collection is part of a series of environmental education resource guides designed to help educators find exemplary teaching materials. Other guides include *The Environmental Education Collection, Volume I*, which is a compendium of general environmental education resources on a variety of topics, and *The Environmental Education Collection, Volume II*, which will include additional environmental education resources.

Why Biodiversity?

Biodiversity is the variety of life on Earth. It's everything from the tiniest microbes to the tallest trees, from creatures that spend their entire lives deep in the ocean to those that are anchored firmly in the soil of the Earth's crust. It's also the word used to describe the wealth of habitats that house all life forms and the interconnections that tie us together. All of Earth's ecosystems and all life forms that have evolved within them–including the fantastic range and expression of human culture–are part of our planet's biodiversity.

Biodiversity is the perfect cross-cutting theme to help provide real-world contexts and issues that promote critical and creative thinking, citizenship skills, and responsible action. Biodiversity also illustrates the complexity of environmental issues and the fact that there are many perspectives, as well as much uncertainty. We believe that biodiversity is an important and powerful issue that draws learners in and promotes thinking across disciplines.

The resources reviewed in this guide provide dozens of ideas for developing lesson plans, units, and courses that focus on biodiversity. These are some of the best resources available today for developing exemplary environmental education programs.

"Biodiversity represents the very foundation of human existence. Yet we are eroding this biological capital at an alarming rate . . . The more we learn of the workings of the natural world, the clearer it becomes that there is a limit to the disruption that the environment can endure.

Besides the profound ethical and aesthetic implications, it is clear that the loss of biodiversity has serious economic and social costs. The genes, species, ecosystems, and human knowledge that are being lost represent a living library of options available for adapting to local and global change. Biodiversity is part of our daily lives and livelihood and constitutes the resources upon which families, communities, nations, and future generations depend."

Global Biodiversity Assessment: Summary for Policy Makers, United Nations Environment Programme, 1995

The Environmental Education Process

Biodiversity is an important part of any environmental education program because all environmental issues affect biodiversity. The goal of environmental education is to develop an environmentally literate citizenry that has the knowledge, skills, commitment, and motivation to take responsible action on behalf of the environment. Through comprehensive, cohesive programs, learners explore how feelings, experiences, attitudes, and perceptions influence environmental issues. They also become knowledgeable about natural and human processes and systems and how humans influence and are influenced by natural systems. Environmental education also provides opportunities for learners to analyze environmental problems and issues using a variety of techniques, use basic science and math skills, and explore the nature of bias. Learners also develop a sense of their rights and responsibilities as citizens, and they gain the skills and insights needed to become effective citizens in a democratic republic.

Environmental education cuts across disciplines, political spectrums, philosophies, ethics, and cultures. It is a process that is learner centered and provides students with opportunities to construct their own understanding through hands-on experiences and by engaging in discussions and interactions. Environmental education is simply good education. It helps learners view the environment within the context of human influences, including economic, cultural, political, and social issues. It also encourages learners to explore and understand their local surroundings by moving out into larger systems, broader issues, and a more sophisticated comprehension of causes, connections, and consequences.

Picking the Best–What Was the Process?

Our goal in developing this collection was to include a broad range of exemplary educational materials (e.g., curriculum guides, videos, CD-ROMs, posters) that focus on biodiversity. The first step involved trying to find as much of the "good stuff" as possible. We sent letters to commercial publishers, not-for-profit organizations, government agencies, and other organizations that produce educational materials asking them to submit materials for the review. We reviewed more than 200 resources representing a wide range of biodiversity education materials. The curriculum materials included in this guide were reviewed and evaluated by teams comprising classroom teachers, content experts, and environmental educators. Each set of materials was reviewed by at least three people. In those cases where reviewers disagreed, the materials were evaluated by other experts. The materials listed in this compendium received the highest ratings of those reviewed.

Although every effort was made to gather as many materials as possible, it was impossible to find every biodiversity eduction resource in the country. Therefore, we do not claim that the materials listed in this compendium are the best of all that exist. We do, however, believe this is an excellent representation of curriculum materials that address a broad range of biodiversity issues and topics; that are geared to a variety of learners (re: age, setting, group size, etc.); and that have many exemplary characteristics, especially their approach to environmental education. It is our hope that this compendium will serve as a guide and assist you as you make decisions and choose materials that are most appropriate for your situation.

There are two major parts to this collection. The first part highlights 47 of the best supplementary curricula we found that focus on some aspect of biodiversity. The second part includes an annotated bibliography that features general background information, children's books and magazines, multimedia resources, web sites, and a variety of other resources focused on biodiversity issues. Although these materials were also reviewed, the review was not as extensive and the goal was to include a variety of high-quality supplementary materials that would enhance a biodiversity unit or program.

The Review Criteria

urriculum materials included in this compendium were evaluated using the *Environmental Education Materials: Guidelines for Excellence* developed by NAAEE. These guidelines provide a set of criteria that are designed to help develop and select exemplary environmental education materials. Developed through a process of critique and consensus, the guidelines reflect a widely shared understanding of the characteristics of high-quality environmental education. More than 1000 individuals and organizations (e.g., teachers, educational administrators, environmental scientists, curriculum developers, business and industry representatives, national associations) participated in the development of the guidelines.

Environmental Education Materials: Guidelines for Excellence highlights six key characteristics of high-quality environmental education materials. For each of the six characteristics, a series of sub-issues and indicators will help reviewers gauge how well the materials meet the criteria. (To order the complete guidelines, write to the North American Association for Environmental Education at 1255 23rd Street, NW, Washington, DC 20037, or call [513] 676-2514. Cost is $7.00 plus shipping and handling.)

The six key characteristics are as follows:

1. Fairness and Accuracy

Environmental education materials should be fair and accurate in describing environmental conditions, problems, and issues, and in reflecting the diversity of perspectives on them.

- 1.1 Factual accuracy
- 1.2 Balanced presentation of differing viewpoints and theories
- 1.3 Openness to inquiry
- 1.4 Reflection of diversity

2. Depth

Environmental education materials should foster an understanding and appreciation of environmental concepts, conditions, problems, and issues, as appropriate for different developmental levels.

- 2.1 Focus on concepts
- 2.2 Concepts in context
- 2.3 Attention to different scales

3. Emphasis on Skills Building

Environmental education materials should build lifelong skills that enable learners to address and prevent environmental issues.

- 3.1 Critical and creative thinking
- 3.2 Applying skills to issues
- 3.3 Action skills

4. Action Orientation

Environmental education materials should promote civic responsibility, encouraging learners to use their knowledge, personal skills, and assessments of environmental issues as a basis for action.

- 4.1 Sense of personal stake and responsibility
- 4.2 Self-efficacy

5. Instructional Soundness

Environmental education materials should rely on teaching techniques that create an effective learning environment.

- 5.1 Learner-centered instruction
- 5.2 Different ways of learning
- 5.3 Connection to learners everyday lives
- 5.4 Expanded learning environment
- 5.5 Interdisciplinary
- 5.6 Goals and objectives
- 5.7 Appropriateness for specific learning settings
- 5.8 Assessment

6. Usability

Environmental education materials should be well designed and easy to use.

- 6.1 Clarity and logic
- 6.2 Easy to use
- 6.3 Long lived
- 6.4 Adaptable
- 6.5 Accompanied by instruction and support
- 6.6 Make substantiated claims
- 6.7 Fit with state or local requirements

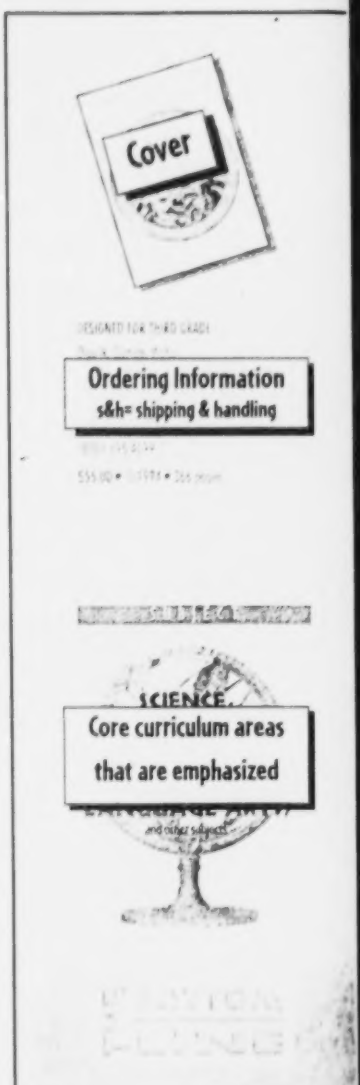
These guidelines offer a way of judging the relative merit of different materials, a standard to aim for in developing new materials, and a set of ideas about what a well-rounded environmental education curriculum might look like and include. It is not reasonable to expect that all environmental education materials will meet all of the suggested guidelines. For example, a set of materials might not present differing viewpoints, as outlined in guideline #1.2. This shortcoming does not necessarily mean that the materials should not be used. An educator could work them into a larger set of activities that explores different viewpoints and helps learners discern opinion and bias in individual presentations of the issue. Likewise, a curriculum project that focuses on the science of biodiversity might not include a discussion of the social issues, but may still be used effectively as a science resource within a larger, more interdisciplinary unit on biodiversity.

The write-ups for each of the materials included in *The Biodiversity Education Collection–Resources for Educators* are designed to point out features or characteristics that will help educators decide which materials are most appropriate for a particular group of learners and how those materials might be used most effectively. Although the reviewers made a valiant effort to evaluate the materials using their professional judgment and their interpretation of the *Environmental Education Materials: Guidelines for Excellence*, we know the reviews are somewhat subjective and that opinions may vary about specific materials. We also did not have the space to provide in-depth reviews for each key characteristic so we used our best judgment about what to include and what to cut. The box on the right includes a few more things to keep in mind as you review the write-ups.

THINGS TO KEEP IN MIND

- The reviewers tried to highlight strengths but also pointed out other considerations they felt educators would want to know about before purchasing a resource. It's important to point out that what one reviewer might consider a weakness, another might consider a strength. At the same time, some reviewers felt more strongly about some issues than other reviewers. Just keep in mind that the write-ups are meant to guide you, and that you need to read the entire review to get a feel for the curriculum.
- If the materials were not designed to meet one of the key characteristics, the reviewer noted that in the write-up.
- Each item reviewed in this compendium was produced by an organization, agency, business, or other institution that has its own goals, mission, and agenda. However, we found that many different kinds of organizations produced outstanding materials and that the variety of perspectives is important for building an effective program.
- We believe that the key to good education lies with educators. That's why we included a mix of resources that have a variety of strengths and weaknesses. We believe that good educators can use this guide as a tool to select the materials that will help them build educationally sound units and programs.
- We included as much information as possible to help users find and order the materials. However, items such as prices, phone numbers, and addresses will change often. If you find an error, please let us know. (See feedback forms in back.)
- We included the major subject focus, which was based on the reviews. Because of space limitations, we did not necessarily include every subject listed.
- We have included a few state and provincial curricula that the reviewers felt had wide-scale adaptability. However, most of the state and local resources are listed in the Appendix under "Other Curriculum Resources."
- Our reviewers included classroom teachers, subject area specialists, and environmental educators. In some cases, especially with those curriculum materials that were very comprehensive and touched on many complex issues, it was difficult to get a thorough review because no one person was an expert in all areas. Please keep that in mind as you read through the reviews and know that even if the reviewers found the materials to be accurate, there still might be factual areas or biases that were not detected.

The main section of this resource guide highlights 47 biodiversity education curriculum materials. Entries are listed in alphabetical order. Each entry includes a summary of the curriculum (*In a Nutshell*) and information about grade levels, subject areas, author, publisher, and price. Each entry also includes comments specific to the six key characteristics (*What the Reviewers Said . . .*) and a few quotations from the reviewers' evaluation sheets that help summarize the review (*The Bottom Line*). See the illustration at right for a sample of how each curriculum entry is designed and what it includes.



The appendix contains an annotated listing of support materials that includes reference books, student books, posters, and video kits and other multimedia supplementary materials. In addition, we've included organizations that educators can contact for more information about biodiversity.

GRADE LEVELS indicated in the first two sections are as follows:

Primary–Grades K-2; Intermediate–Grades 3-5; Middle School–Grades 6-9; Elementary–Grades K-8; Secondary–Grades 9-12.

On page 104 in the appendix, we've included a matrix that cross-lists all of the materials by grade levels, topics, and subjects to make it easier to locate the materials you need. At the end of the guide we have included a short feedback form that we'd like to encourage you to fill out and send back to us. We plan to update and revise this compendium in the future and would like to request your help in this process. If you are aware of additional resources that should be reviewed, or if we've included materials that you feel are inappropriate, please use the form to let us know your thoughts. We'd also appreciate corrections to any errors we may have made in addresses, prices, phone numbers, and other entries.

We hope this compendium is valuable to you as you develop your environmental education curriculum, and we look forward to hearing from you. Please send your comments to:

Environmental Education Division
World Wildlife Fund
1250 24th Street, NW
Washington, DC 20037
Fax: (202) 861-8378

Sample Format

A CH[illegible] IN T[illegible] Curriculum Title [illegible]NT

Unit 3: Preserving and Restoring Ecosystems

IN A NUTSHELL

A brief description of the curriculum and its contents

Preserving and Restoring Ecosystems is the third-grade-level unit in the series, A Child's Place in the Environment. The purpose of the series is to provide elementary school teachers with an example of an interdisciplinary, thematic environmental education program. The grade-level specific units are [illegible] to the "Science Framework for Calif[illegible]" The level unit is designed around four major th[illegible] systems and interactions, patterns[illegible]

The units consist of a[illegible]ons that cater to diverse learning styles and [illegible]e lessons in each unit are linked by a storyline[illegible]onmental awareness. Preserving and Restoring Ecosystems also cont[illegible]es. The goals of this third-grade unit are t[illegible]e aware of the interdependence tha[illegible]stand how changes affect ecosystems and how [illegible]ed, to value the actions of people who are making efforts to improve their environment, and to act responsibly toward their environment through class projects.

The guide contains background information for the teacher, an overview of the activity, vocabulary, materials needed, activities and procedures, curricular connections, extensions, variations, evaluations, student worksheets and handouts, and overhead transparency masters.

WHAT THE REVIEWERS SAID...

Six key characteristics identified in *EE Materials: Guidelines for Excellence*

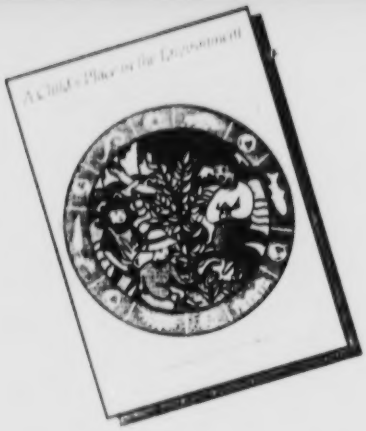
Summary of reviewer comments concerning the curriculum

NAAEE GUIDELINES	STRENGTHS	THINGS TO CONSIDER
Fairness and Accuracy	Very fair and accurate. Materials were reviewed and field tested by over 50 educators.	
Depth	Provides conceptu[illegible] in coverage of cur[illegible] focus on a variety [illegible] to global.	
Emphasis on Skills	Strong on contact [illegible] strategies. Students gain basic skills in resolving environmental issues by reading, journal writing, creative and critical thinking, and problem solving.	
[illegible]	Students are encouraged to consider the choices they can make. Activities help students identify actions they can take. Provides strategies for individual and group involvement.	Could use more examples of success/failure stories for analysis.
[illegible]	Provides lots of alternatives for different learners and learning styles. Good interdisciplinary focus. Excellent goals, objectives, and assessment. Appropriate for grade level. Addresses issues relevant to students' lives. Very active and imaginative.	
Usability	Organized, clear and teacher friendly. Useful 3-ring binder format. Good background information and resources for teachers.	Although organized—there is a lot here that may be overwhelming. Many examples geared to California.

"These materials are a good resource for [illegible] ecosystems and conservation[illegible]"

Quotes from the reviewers

"[illegible]"



A CHILD'S PLACE IN THE ENVIRONMENT

UNIT 3: PRESERVING AND RESTORING ECOSYSTEMS

GRADE LEVEL: 3

Olga N. Clymire, Writer
Publisher: Department of Education
Bureau of Publications
P.O. Box 271
Sacramento, CA 95812-0271
(800) 995-4099

$55.00 + s&h • ©1994 • 366 pages

SUBJECTS

Science and the Environment

with interdisciplinary ties to Social Studies, Language Arts, and other subjects

IN A NUTSHELL

Preserving and Restoring Ecosystems is the third-grade-level unit in the series, *A Child's Place in the Environment*. The purpose of the series (for grades 1-6) is to provide elementary school teachers with an example of an interdisciplinary, thematic environmental education program. The grade-level specific units are conceptually correlated to the "Science Framework for California Public Schools." Each grade-level unit is designed around four major themes: valuing the environment, systems and interactions, patterns of change, and conservation. Other biodiversity-related units include *Conserving Natural Resources* (Grade 5) and *Achieving a Sustainable Community* (Grade 6). The units consist of approximately 20 sequential lessons that cater to diverse learning styles and promote cooperative learning. The lessons in each unit are linked by a storyline, guiding students through environmental awareness, understanding, critical thinking, and action projects. *Preserving and Restoring Ecosystems* also contains activities that analyze values. The goals of this third-grade unit are to encourage students to become aware of the interdependence that exists in ecosystems, to understand how changes affect ecosystems and how some species become endangered, to value the actions of people who are making efforts to improve their environment, and to act responsibly toward their environment through class projects. The guide contains background information for the teacher, an overview of the activity, vocabulary, materials needed, activities and procedures, curricular connections, extensions, resources, evaluations, student worksheets and handouts, and overhead transparency masters.

THE BOTTOM LINE

"These materials are a good resource for teaching about ecosystems and conservation."

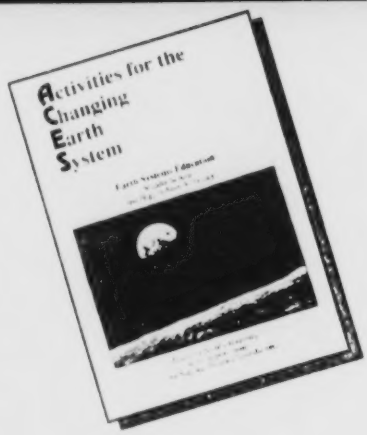
WHAT THE REVIEWERS SAID...

NAAEE GUIDELINES	STRENGTHS	THINGS TO CONSIDER
Fairness and Accuracy	Materials were reviewed and field tested by over 50 educators.	
Depth	Conceptual framework included. Good coverage of ecological concepts. Activities focus on a variety of scales, from local to global aspects of environmental issues.	Some information is specific to California.
Emphasis on Skills Building	Based on sound educational theory and strategies. Students gain basic skills in resolving environmental issues by reading, journal writing, creative and critical thinking, and problem solving.	
Action	Students are encouraged to consider the choices they make. Activities help students identify actions they can take. Material provides strategies for individual and group involvement in action projects.	Could use more examples of success stories for analysis.
Instructional Soundness	Includes alternatives for different learners and learning styles. Good interdisciplinary focus. Effective goals, objectives, and assessment ideas are listed. Appropriate for intended grade level. Addresses issues relevant to students' lives. Very active and imaginative.	
Usability	Organized, clear, and teacher-friendly. Useful 3-ring binder format. Good background information and resources for teachers.	There is a lot of material, particularly on educational theory. Although impressive– may be overwhelming. Many examples geared to California.

"These materials seem very thorough in terms of the latest educational theory: constructivism, group cooperation, journal writing, storylines, etc."

"Developed in a manner that allows students to gain knowledge, build upon that knowledge, and make decisions."

Windows on the Wild "The Biodiversity Collection"



ACTIVITIES FOR THE CHANGING EARTH SYSTEM

GRADE LEVELS: MIDDLE AND SECONDARY

Publisher: Earth Systems Education Program
The Ohio State University
2021 Coffey Rd.
Columbus, OH 43210-1078
(614) 292-1078 fax: (614) 292-7432
web: http://www.ag.ohio-state.edu/~earthsys/

$10.00 + s&h • ©1993 • 291 pages

SUBJECTS

Biology,
Chemistry,
Physics,
and
General Science

IN A NUTSHELL

This guide is intended to help fill the need for more teaching materials related to global-change issues. It is divided into three sections. The first section contains teaching materials targeted at the middle school level. The second contains materials for use primarily in secondary science classes, including biology, chemistry, and physics. The third contains fact sheets intended to help teachers improve their knowledge of a variety of global-change issues and to help them use technology to teach about those issues. Each activity in the guide includes the appropriate science content along with a focus on the Earth as an integrated system. Many activities also incorporate art, music, and literature, as well as a focus on stewardship of natural resources. Each activity contains the following sections: objectives, connections to the Earth Systems Framework, materials necessary, procedures, extensions, teacher background information, and an annotated bibliography of useful references. Global-change activity topics include biodiversity, the greenhouse effect, ozone depletion, freshwater resources, deforestation, climate modeling, volcanic eruptions, and global climate change.

THE BOTTOM LINE

"Activities are well planned and complete."

WHAT THE REVIEWERS SAID...

NAAEE GUIDELINES	STRENGTHS	THINGS TO CONSIDER
Fairness and Accuracy	Accurate. Explains uncertainties and different theories and viewpoints. Developed and reviewed by experts, including scientists and teachers. Data sources are listed.	Older copyright: information and data obtained since 1993 is not included.
Depth	Activities are linked to an educational framework. Includes a variety of support materials and data. Considers a variety of scales, from local to global aspects of environmental issues.	Some activities could use more background information for teachers, particularly at the high school level.
Emphasis on Skills Building	Scientific method, use of primary data, and critical thinking are encouraged. Good hands-on activities.	Focus is on scientific concepts and theory more than on analyzing and solving environmental problems.
Action	Students are given opportunities to evaluate issues and form their own opinions.	Inquiry-based, but not action-oriented material. No focus on individual and community strategies for citizen involvement.
Instructional Soundness	Variety of activities that cater to diverse learning styles. Good mix, from games to serious research and from individual to cooperative learning. Includes indoor and outdoor activities, evaluation strategies, and extension ideas.	Attempts to make activities interdisciplinary are not always successful–main focus is on science.
Usability	Well written. Clear format. Framework is helpful. Good references to other resources. Activities will hold students' interest.	Big and bound–difficult to photocopy student pages.

"The activities are simple, yet cover the content well."

ADAPTATIONS

REGIONAL ENVIRONMENTAL EDUCATION PROGRAM—REEP

GRADE LEVELS: MIDDLE AND JUNIOR HIGH

Nancy Christie, Editor
Publisher: The Schuylkill Center for Environmental Education
8480 Hagy's Mill Rd.
Philadelphia, PA 19128-1998
(215) 482-7300 fax: (215) 482-8158
email: scee@erols.com
web: http://www.schuylkillcenter.org

$30.00 + s&h • ©1995 • 203 pages

SUBJECTS

Life Science

IN A NUTSHELL

The Regional Environmental Education Program (REEP) is a K-12 curriculum that was produced as the result of a three-year project involving 200 teachers from a five-county area of southeastern Pennsylvania and six coordinating nature/environmental centers. The Pennsylvania Department of Education's Office of Environmental Education uses REEP as a model curriculum in environmental education, and REEP has been endorsed as meeting state-mandated environmental education requirements and objectives. *Adaptations* is the middle and junior high life-science unit of the REEP series and includes 10 lessons. Although the lessons can stand on their own, they are designed to be taught in a sequence that progresses from awareness to action experiences. The unit contains an introduction that provides background information and a lesson summary outlining the instructional flow from lesson to lesson. A unit evaluation, glossary, and bibliography are included. Lessons contain one to three activities that require up to three class periods to complete. Activities include introductory concept information, objectives, materials needed, time and site, and a step-by-step guide to procedures needed to prepare, implement, and evaluate the activity. The goal of *Adaptations* is to examine adaptations in the context of threatened, endangered, and extinct species in tropical rain forests. Lessons emphasize how and why adaptations occur, the impact of human activities on plants and animals in these ecosystems, and the role individuals have in helping to solve the problem of declining species.

THE BOTTOM LINE

"Activities deal with a variety of issues and help students investigate and analyze problems and develop their own solutions and action projects."

WHAT THE REVIEWERS SAID...

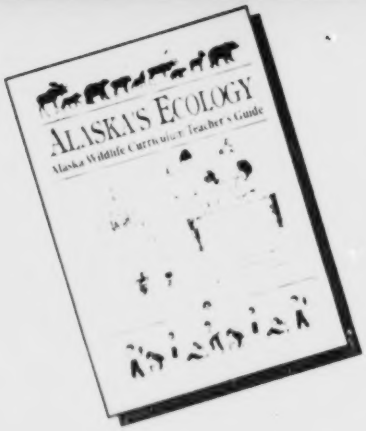
NAAEE GUIDELINES	STRENGTHS	THINGS TO CONSIDER
Fairness and Accuracy	Accurate. Inquiry-based activities encourage students to look at issues from many perspectives. Activities were field tested.	
Depth	A variety of activities that focus on a range of concepts. Focuses on diversity of geographic areas.	Could use more background information for teachers. Links between concepts are sometimes not made.
Emphasis on Skills Building	Promotes environmental monitoring/ sampling skills. Encourages creative and critical thinking skills. Extension projects emphasize application.	Could use more on how to recognize bias and determine the validity of sources.
Action	Promotes global responsibility. Provides suggestions for action. Students are encouraged to connect the concepts learned in each lesson to actions they can take.	Could use examples of successful projects and action-based activities and more support for the teacher about how to facilitate action.
Instructional Soundness	Objectives are listed. Students build on previous knowledge to enhance learning. Caters to diverse learning styles. Activities seem appropriate for grade level. Assessment ideas are given.	Primarily science; limited links to other curriculum areas.
Usability	Clear directions and easy-to-use format. A variety of illustrations, charts, maps, and other visual aids are given.	Some teachers might need more background information.

"Good hands-on activities."

"The materials provide a list of organizations and resources to help students explore on their own."

Windows on the Wild, "The Biodiversity Collection"

ALASKA'S ECOLOGY



GRADE LEVELS: K-12

Publisher: Division of Wildlife Conservation
Alaska Department of Fish and Game
c/o Circumpolar Press
Box 221955
Anchorage, AK 99522
(907) 248-9921

$12.95 + s&h • ©1994 • 162 pages

SUBJECTS

Primarily Science,
with activities that support interdisciplinary teaching.

IN A NUTSHELL

Although specific to Alaska, many reviewers felt this curriculum could be adapted to other areas. *Alaska's Ecology* is divided into five units: Ecosystems, Living Things, Non-Living Things, and Energy; Food Chains, Webs, and Pyramids; Interactions in Ecosystems; Ecosystem Investigations; and Problem-Solving for Ecosystems. Each unit contains background information about the topics covered in the unit and a series of student activities. The activities are multidisciplinary and may be integrated into existing courses of study or combined to serve as the basis for a multi-unit course. Each activity includes grade level, subject, skills, duration, group size, setting, vocabulary, objectives, teaching strategies, materials, procedures, extension ideas, evaluation suggestions, and resources. Support materials include a set of 270 cards that illustrate and describe plants, animals, and other living things that live in Alaska. These *Alaska Ecology Cards* are also available from the Alaska Department of Fish and Game.

THE BOTTOM LINE

"Good for teaching general ecological concepts to students–especially at the elementary level."

WHAT THE REVIEWERS SAID...

NAAEE GUIDELINES	STRENGTHS	THINGS TO CONSIDER
Fairness and Accuracy	Accurate. Presents diverse viewpoints.	Some activities have expected answers and do not provide for exploration.
Depth	Concepts are well presented and appropriate for the elementary grades. Activities are linked to a conceptual framework.	Most activities are geared to elementary grades and could use more depth. Focus is science; limited connections to social issues.
Emphasis on Skills Building	Skills are listed at the beginning of each activity. Includes observing, classifying, and analyzing. Encourages critical thinking.	Mostly science or ecology content; could use more on the development of action skills.
Action	Unit five contains activities that cover action and personal responsibility.	Action focus is not integrated throughout the curriculum. Some teachers might need more guidance on how to facilitate action. Some reviewers thought a few of the activities were too "preachy" and biased.
Instructional Soundness	Clear objectives. Assessment ideas are given. Connections made to students' lives. Indoor and outdoor activities. Activity-based format.	Most activities are teacher directed and classroom based.
Usability	Clear, easy-to-follow format. Diagrams and layout are clear and helpful.	Some activities and examples are directly linked to Alaska. Wide range of grade levels suggested for some activities.

"Although most relevant to Alaska, other teachers would be able to adapt the material."

"The *Alaska Ecology Cards* contain a lot of hard-to-find information."

ALBERTA'S THREATENED WILDLIFE

GRADE LEVELS: K-9

Publisher: Alberta Environmental Protection
Information Center
Main Floor, 9920-108 St.
Edmonton, AB T5K 2M4 Canada
(403) 422-2813
email: infocent@env.gov.ab.ca
web: http://www./gov.ab.ca/env/

Fact Sheets ©1990-1996 • 6 pages

Teacher's Guides ©1996 • 48-72 pages

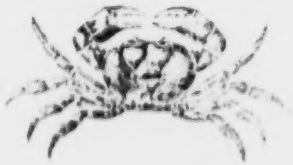
$15.00 Canadian

SUBJECTS

Biology
and
General Science

IN A NUTSHELL

Alberta's Threatened Wildlife includes a series of 10 fact sheets that contain specific details on individual species such as peregrine falcons, swift foxes, and whooping cranes. Information provided in the fact sheets include status, description, habits, reproduction, food, limiting factors, management, and outlook. The series also includes teacher's guides for some of the individual species. The guides provide overviews, suggested activities, and resource lists for various grades and curricula. Activities in the teacher's guides include an introduction to the topic, its purpose, materials required, preparation needed, vocabulary, concepts, procedures, questions, student worksheets, and follow-up activities. Each teacher's guide also contains a glossary and a list of recommended resources.



THE BOTTOM LINE

"Excellent approach–teaches global concepts via local wildlife issues."

WHAT THE REVIEWERS SAID...

NAAEE GUIDELINES	STRENGTHS	THINGS TO CONSIDER
Fairness and Accuracy	Accurate and well researched. Extensive factual data reported in clear, concise language.	Designed to focus on status and future of threatened wildlife; doesn't focus on economic and development perspectives or wider biodiversity issues. Some information might have changed since 1990.
Depth	A wealth of information on individual species. Good focus on biological concepts. Background information given in historical, geographical, and economic contexts.	Very specific to Alberta, which is the purpose of this material. Species-specific. Although local in content, students can apply issues and concepts to a global scale.
Emphasis on Skills Building	Students are encouraged to think critically about why a species is endangered. Students collect data, analyze, draw conclusions, and formulate opinions through a variety of games, hands-on activities, and worksheets. Wrap-up activities focus on action.	
Action	Each teacher's guide includes an action section with a range of ideas to support the teacher. Students are encouraged to analyze the impact their actions have on wildlife and the environment.	
Instructional Soundness	Excellent learner-centered activities. Interdisciplinary. Includes a diversity of activity types. Caters to diverse learning styles. Connections made to students' everyday lives.	Primarily classroom based, with limited independent study outside of the classroom setting. Goals are stated in general terms; no specific objectives correlated to individual activities. Assessment is quiz oriented.
Usability	Clear, logical, and easy to use. Well written. Excellent teacher background. Appropriate for formal and nonformal settings.	Focus is on Alberta's wildlife.

"The brochure information is very comprehensive. The action sections of the teacher's guides are great–clear, encouraging, and loaded with useful addresses, phone numbers, and resources."

ANIMAL TRACKS

Animal Tracks (Children's Book)
Activity Guide for Educators
Habitat Action Pack

GRADE LEVELS: 4-6

Publisher: National Wildlife Federation
8925 Leesburg Park
Vienna, VA 22184
(703) 790-4100

National Education Association
NEA Professional Library
P.O. Box 509
West Haven, CT 06516-9904
web: http://www.nwf.org

Children's book ©1995 • 78 pages

Activity Guide ©1995 • 161 pages

Action Pack ©1996 • 45 pages

$24.95 + s&h includes 30 copies of the Children's Book & Activity Guide and Action Pack

SUBJECTS

Science Concepts
are stressed, but all subjects are covered in the activity guide.

IN A NUTSHELL

The *Animal Tracks* activity guide for educators of grades 4-6 is designed to accompany the *Animal Tracks* children's book, although both can work independently of each other. The book is a collection of articles, activities, and games. The activity guide contains 11 units, each concentrating on a different conservation issue such as backyard wildlife, water conservation, air quality, composting, and endangered species. A "challenge" defines and directs the focus of each unit, and "Did You Know" offers clues to understanding the challenges either by reinforcing them or providing information useful in finding solutions. All activities in a unit can be used together to explore the topic, or activities may be used independently. Activities stress critical thinking, interpretation of data, hypothesis testing, experimentation, analysis, role playing, and group work. Each of the activities in a section includes background information, subjects, skills, grade levels, time needed, vocabulary, intended learning outcomes, materials, procedures, and extension ideas. Reproducible black line handouts are provided with many lessons. A glossary is included. *The Habitat Action Pack* is a classroom resource that explores habitats and focuses on discovery, awareness, and action. Through a series of activities, students learn what a habitat is and how it fits into an ecosystem; how organisms in an ecosystem are connected; what causes habitat loss and how it relates to threatened and endangered species; and what they can do to help preserve, restore, and create habitats.

THE BOTTOM LINE

"The activity guide includes modifications and extensions that allow teachers to adjust the lessons to meet the needs of their students."

WHAT THE REVIEWERS SAID...

NAAEE GUIDELINES	STRENGTHS	THINGS TO CONSIDER
Fairness and Accuracy	Accurate. Students are encouraged to inquire about issues and form and express their opinions about competing theories.	Descriptions and illustrations could show more cultural diversity.
Depth	Activities are good at focusing on concepts and include social and economic aspects. Interdisciplinary.	Some educators may want more background information.
Emphasis on Skills Building	Process skills such as team building, observing, testing, writing, and analyzing results are emphasized along with leadership and conflict-resolution skills.	Because information is sometimes brief and simplistic, students may draw conclusions without considering the complexity of the issues.
Action	Very action oriented. Students develop a sense of personal responsibility. Encourages individual- and group-action projects.	Ideas for action are included, but some teachers might want more details on implementation.
Instructional Soundness	Activities are clear and age appropriate. Includes many experiential learning activities and caters to diverse learning styles. Intended learning outcomes and extensions/modifications are listed.	
Usability	Children's book is colorful and clear. Teacher information is helpful. Good resources section.	The *Habitat Action Pack* is difficult to read–a lot of text and some of it is blurry.

"These materials would be useful to elementary school teachers who want to teach about a range of issues affecting wildlife."

Windows on the Wild, "The Biodiversity Collection"

BACKYARD BIODIVERSITY & BEYOND

GRADE LEVELS: 4-9

Deanna Binder, Stewart Guy, and Briony Penn, Writers
Publisher: Province of British Columbia
Ministry of Environment, Lands and Parks
Environment and Forest Education Program Office
P.O. Box 9517, Stn. Prov. Gov.
Victoria, BC V8W 9C2 Canada
(250) 356-7111
email: wild@pop.gov.bd.ca

$20.00 Canadian (workshop attendance required)

©1994 • 130 pages

IN A NUTSHELL

This biodiversity resource kit brings messages about the nature and value of biodiversity in British Columbia (BC) to students. This resource features BC flora and fauna, as well as BC biodiversity issues and success stories, but it can be adapted to other areas. Through the activities in this kit, students can get involved in activities designed to celebrate and protect of restore the biodiversity of their communities. Local biodiversity issues are used to engage students in global issues. The kit features an interdisciplinary approach, and modules presented include Biological Diversity–The Spice of Life; Connections–The Basics of Biodiversity; Biodiversity in British Columbia; Endangered Species/Endangered Spaces; and Biodiversity–Think Globally. Each module includes outcome charts for knowledge, attitude, and process; a teacher introduction and background information; activity masters that develop the concepts from the perspective of different subject areas; and extension activities that expand the study of biodiversity. A section called "Act Locally!" contains community-action project tools and models. Appendices include references, glossary, BC species list, and a cross reference to *Project WILD*.

SUBJECTS WITH

Primarily Science,
with connections to social studies, language arts, math, art, and other curriculum areas.

THE BOTTOM LINE

"These materials provide an excellent series of activities to help students understand biodiversity and explore the diversity of local, regional, and global ecosystems."

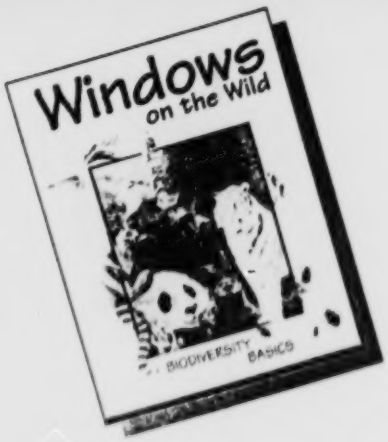
WHAT THE REVIEWERS SAID...

NAAEE GUIDELINES	STRENGTHS	THINGS TO CONSIDER
Fairness and Accuracy	Accurate. Reviewed by a range of experts. Problems and issues are presented in a clear, straightforward way. Includes a strong multicultural perspective.	Social issues are peripheral. Minimal discussion of different points of view or conflicts about biodiversity.
Depth	Concepts are presented logically. Activities help students probe more deeply into ecological concepts. Presents a variety of scales, from local to global, with an emphasis on local.	Depth is appropriate for age level, but social context is not fully explored. Focus is on studying and exploring biodiversity; limited focus on causes of the problems.
Emphasis on Skills Building	Process skills such as observing, collecting and analyzing data, and working cooperatively help students develop an understanding of biodiversity and related issues.	Materials focus more on knowledge and individual attitudes than on developing skills needed for action implementation.
Action	Kit contains a short action section along with limited action activities within some of the modules.	Action activities are not detailed with "how-to" explanations; more of a shopping list rather than educating for action.
Instructional Soundness	Learner centered. Caters to a variety of learning styles. Interdisciplinary. Connections made to students' lives. Learner outcomes are clearly outlined with strategies about how to assess.	
Usability	Well packaged and easy to use. Excellent layout and use of diagrams and graphics. Inviting program to use.	Need to attend workshop to receive guides.

"Even though the focus is on British Columbia, these materials are easily adaptable for any region of the world."

"Although weaker in the action arena than I'd like, the kit provides some excellent ideas and good resource lists to help gather more information."

Windows on the Wild "The Biodiversity Collection"



BIODIVERSITY BASICS— EXPLORING THE WEB OF LIFE

GRADE LEVELS: 6-9

Judy Braus, Editor
World Wildlife Fund

Publisher: Acorn Naturalists
17300 East 17th Street, #I-236
Tustin, CA 92780
(800) 422-8886

Coming Spring 1998

SUBJECTS

Science and Social Studies,
with interdisciplinary connections to language arts, geography, and other disciplines

IN A NUTSHELL

Biodiversity Basics is the introductory curriculum module to World Wildlife Fund's *Windows on the Wild (WOW)* program. *Windows on the Wild* is a national environmental education program designed to educate people of all ages about biodiversity and stimulate critical thinking, discussion, and responsible action on behalf of the environment. This first module introduces biodiversity and addresses the following themes: What Is Biodiversity? Why Is Biodiversity Important? What Is the Current Status of Biodiversity? and What Are People Doing to Help Protect Biodiversity? The module includes an introduction to the *WOW* program, background information on biodiversity for educators and students, about three dozen interdisciplinary teaching activities, ready-to-copy activity sheets, resources, and other information to help educators incorporate environmental education into their teaching. Developed for schools and zoos, museums, nature centers, and other non-formal educational institutions. Activities help students examine the nature of biodiversity, describe its significance, investigate its link to global sustainability, and learn how to take appropriate and responsible action. Each activity contains an overview, objectives, materials, vocabulary, subjects, procedures, extension ideas, and suggested assessment strategies. Resources include suggestions about how to get involved in community service; guidelines for planning action projects; correlation to the NAAEE guidelines for excellence; a glossary; and annotated lists of organizations, internet resources, books for students, and other curriculum and multimedia resources.

THE BOTTOM LINE

"This is an excellent resource. There is so much usable material that is informative, interesting, and creative."

WHAT THE REVIEWERS SAID...

NAAEE GUIDELINES	STRENGTHS	THINGS TO CONSIDER
Fairness and Accuracy	Accurate and well written. Balanced approach to issues; multiple perspectives are represented. Well referenced, with sources cited. Students are encouraged to draw their own conclusions.	
Depth	Comprehensive background information. Activities focus on science and social studies concepts. Variety of scales represented, from local to global. Based on a conceptual framework.	Many secondary educators will find this guide useful.
Emphasis on Skills Building	Encourages critical and creative thinking. Students observe, collect data, analyze, compare, infer, draw conclusions, evaluate, and use problem-solving skills. Applies skills to issues, with good and positive opportunities to learn action skills.	
Action	Strong action orientation. Very appropriate for age group. Emphasizes need for individual and group action. Excellent guidelines for developing action projects.	
Instructional Soundness	Learner centered and relevant to students' lives. Interdisciplinary. Variety of approaches. Provides for different learning styles. Activities are comprehensive and well thought out. Objectives are given. Assessment strategies are included and materials have been piloted and evaluated.	Includes both indoor and outdoor activities, although most activities are designed for indoors.
Usability	Well organized. Clear, logical, and well written. Excellent and adequate background information. Valuable resource sections.	Panel reviewed a draft. Final artwork was not included.

"A comprehensive, creative, well-written set of activities for understanding the issues associated with local and global biodiversity."

"I wish I had been taught using such interactive and thought-provoking materials."

BIODIVERSITY: UNDERSTANDING THE VARIETY OF LIFE

GRADE LEVELS: 4-6

Publisher: Scholastic Inc.,
2931 E. McCarty St.
Jefferson City, MO 65101
(800) 724-6527

Student Book
$7.95 + s&h • ©1995 • 72 pages

Teacher's Guide
$27.00 + s&h • ©1995 • 136 pages

SUBJECTS

Science
with interdisciplinary connections

IN A NUTSHELL

Biodiversity: Understanding the Variety of Life is one unit in the Scholastic Science Place program and was developed in cooperation with Liberty Science Center in New Jersey. The unifying concept of the environmental component of the Scholastic Science Place program is that all parts of an environment are interrelated; therefore, changes to one part affect other parts. The grade-level concept, as well as the focus of *Biodiversity: Understanding the Variety of Life*, is that people make choices that affect the survival of our own and other species. The student's book (called *A Student's Map*) presents a series of lessons that focus on the three subconcepts of the unit: scientists use different methods to measure Earth's biodiversity, the variety of species and habitats changes with time, and knowledge of biodiversity helps people make decisions about the environment. Topics range from defining biodiversity to species extinction and public attitudes about environmental protection. The student book contains a mix of reading selections, photographs, illustrations, charts, graphs, maps, and activities. The materials emphasize solving problems, developing models, and identifying solutions. The teacher's guide contains background information, process skills and objectives, required materials, a guide to the exploration, connections to other topics, and suggestions for assessment. Support materials include a collection of hands-on and media resources such as equipment kits, a video, reference literature, and materials for home support.

THE BOTTOM LINE

"Good overview of biodiversity from an environmental science standpoint."

WHAT THE REVIEWERS SAID...

NAAEE GUIDELINES	STRENGTHS	THINGS TO CONSIDER
Fairness and Accuracy	Approach is balanced. Students are encouraged to form their own opinions.	Lack of current quotes or statistics to add validity.
Depth	Good introduction to biodiversity with a broad overview of concepts and issues. Examines a variety of scales, from local to global aspects of environmental issues.	Lacks depth and does not address links between environmental science, economics, social sciences, human health, and other issues.
Emphasis on Skills Building	Emphasizes observing, categorizing, comparing, hypothesizing, inferring, predicting, interpreting, and drawing conclusions.	Focus is more on basic understanding and awareness of biodiversity rather than issue analysis and action.
Action	Helps students understand the role people play and the impact they can have on biodiversity and the environment.	Materials are not designed to emphasize personal or group action.
Instructional Soundness	Learner centered. Caters to a variety of learning styles. Makes connections to students' lives. Appropriate for grade level.	Some topics are covered very briefly; some educators may want more background material.
Usability	Easily adapted to meet a variety of needs. Format is clear and easy to read. Would work best if hands-on and media resources (equipment kits, video, reference literature) were used in conjunction with this resource.	While format is clear, it is not always easy to link concepts from one lesson to another.

"This has a lot of potential–it covers different ways of learning, connects to learners lives, expands the learning environment, and is interdisciplinary."

"Nice mix of activities and writings."

BIODIVERSITY WORKS FOR WILDLIFE. YOU CAN TOO!

GRADE LEVELS: 4-8

Luba Mycio-Mommer, Editor
Publisher: Canadian Wildlife Federation
4027 Queensview Dr.
Ottawa, ON K2B 1A2 Canada
fax: (613) 721-2902
email: info@cwf-fcf.org
web: http://www.cwf-fcf.org

$3.00 • ©1994 • 23 pages

IN A NUTSHELL

This resource is part of the Canadian Wildlife Federation's Habitat 2000 program. The program is designed to help students carry out wildlife improvement projects at their schools or in their communities under the supervision of a teacher or group leader. *Biodiversity Works for Wildlife. You Can Too!* contains background information, ideas, and simple instructions to help students get started on a Habitat 2000 project. The guide contains six sections: Biodiversity Works for Wildlife; Give Biodiversity a Boost; Save Fragile Habitats; Create Edge Habitat; Build Life-support Systems; and Put Biodiversity into Action. Each section can be duplicated for student use and contains written background and student materials, vocabulary, action-based activities with instructions, and examples of successful youth action projects.

SUBJECTS

Science,
Social Studies,
Language Arts,
and
Service Learning

31

THE BOTTOM LINE

"As a 'projects you can do' publication, it has clearly defined, fun ideas."

"Simple and prescriptive–but useful."

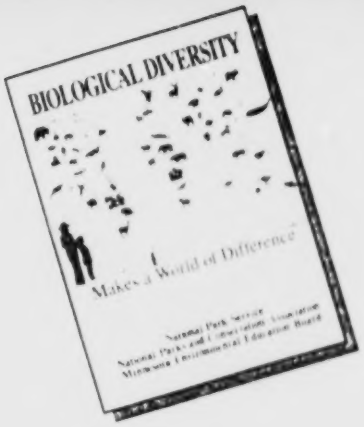
WHAT THE REVIEWERS SAID...

NAAEE GUIDELINES	STRENGTHS	THINGS TO CONSIDER
Fairness and Accuracy	Accurate.	Strong Canadian focus, but can be adapted.
Depth	Good, although brief, overview of levels of biodiversity and other topics. Activities and projects are practical.	Designed for developing habitat projects; doesn't include much content. Activities are somewhat simplistic.
Emphasis on Skills Building	Students learn simple techniques for evaluating, planning, and implementing action projects.	Skills focus on developing habitat areas. Teacher direction will influence skill development.
Action	Purpose of guide is to initiate and support action projects. Students consider the needs of wildlife, learn how they can help, and put a plan into action.	Limited scope with focus on local action tied to habitat projects.
Instructional Soundness	Hands-on, experiential learning. Projects incorporate skills from a variety of curriculum areas.	Lacks conceptual framework, assessment strategies, and learner outcomes.
Usability	Easy-to-use, short guide that sticks to its purpose.	Lack of table of contents or introductory page. Could use an overview (objectives, materials, etc.) for each section.

"These materials and plans could work for a wide variety of audiences–even adult organizations."

"Although not very ambitious educationally, this material accomplishes its purpose of encouraging kids to set up wildlife habitats."

Windows on the Wild "The Biodiversity Collection"



BIOLOGICAL DIVERSITY MAKES A WORLD OF DIFFERENCE

GRADE LEVELS: 4-6

Edward Hessler, Writer

Publisher: National Parks and Conservation Association
1776 Massachusetts Ave. NW
Washington, DC 20036
(800) 628-7275 ext. 216
email: npmember@aol.com

$19.95 + s&h • 3-ring binder-10 units, multiple activities per unit

IN A NUTSHELL

This curriculum connects classroom learning to our national parks with a focus on biodiversity. The guide contains 10 units, each dealing with a specific concept relating to biological diversity. Each unit contains hands-on activities designed to make children aware of the importance of maintaining a biologically diverse world. Some activities are best suited for use at the school site prior to a visit to a park area. These activities are then reinforced by activities conducted in the park. There are additional activities that can be used in the classroom after students return from the park. Materials can be adapted to fit a variety of circumstances and needs. Topics covered in the units include Biodiversity: The Spice of Life; Extinction Is Forever; The Role of National Parks in Maintaining and Preserving Biological Diversity; Biological Diversity: Its Value in $$$ and Sense; Biodiversity: Considering the Global Connections; Habitat and Niche; Organisms/Populations of Organisms; Adaptations/Change; Communities; and Biodiversity at Historic and Cultural Sites. In addition to activities, units contain background information for the teacher, suggestions for evaluation, blackline masters, and a list of resources.

SUBJECTS

Science,
Social Studies,
Geography,
and
Language Arts

THE BOTTOM LINE

"Excellent ideas, but teachers might need more background information and assistance with on-site visits."

WHAT THE REVIEWERS SAID...

NAAEE GUIDELINES	STRENGTHS	THINGS TO CONSIDER
Fairness and Accuracy	Accurate. Good overview of biodiversity.	Little emphasis on complex issues, diverse and opposing opinions, and political aspects of decision making.
Depth	Broad overview of scientific, geographic, and economic aspects of biodiversity. Concepts are connected among units and among fields of study (science, geography, economics, etc.). Good variety of scales, from local to global links.	Open-ended questions presented for students without adequate background information for teachers.
Emphasis on Skills Building	Emphasis is on learning concepts.	Curriculum is not designed to emphasize creative and critical thinking skills.
Action	On-site visits promote active involvement in environmental issues.	Not much emphasis on issues analysis or how to take action.
Instructional Soundness	Objectives clearly stated. Caters to a variety of learning styles. Provides assessment ideas. Concepts relevant to students' lives. Emphasizes hands-on learning and indoor and outdoor exploration.	It would be helpful to state up front that some activities require extensive prior ecological knowledge. Also would be helpful if linked to a framework or standards.
Usability	Clearly written and easy to use. Well-organized blackline masters. Needed supplies are inexpensive and readily available.	Hard to tell if activities have been field tested. More background and support materials would be helpful.

"Activities provide experiential contexts for defining and relating concepts."

"Good introductory overview to basic biodiversity concepts."

BOTTLE BIOLOGY

GRADE LEVELS: K-12 AND COLLEGE

Mrill Ingram, Writer
The Bottle Biology Project
Department of Plant Pathology
College of Agricultural and Life Sciences
University of Wisconsin at Madison

Publisher: Kendall/Hunt Publishing Company
4050 Westmark Dr.
Dubuque, IA 52002-1840
(800) 228-0810

$17.95 + s&h • 1993 • 127 pages

SUBJECTS

Science,
with an emphasis on biology

IN A NUTSHELL

Bottle Biology is an idea book full of ways to use recyclable containers to learn about science and the environment. Bottles are used to create an ecosystem, explore the concept of a niche, model a lake shore, make a tornado, breed fruit flies and spiders, observe the adventures of slime molds, pickle cabbage, make a microscope, and much more. Materials needed are local and inexpensive. Each chapter contains an introduction that describes a bottle activity along with associated issues and concepts, directions for assembly, observation and exploration suggestions, background reading, extension activities, and a list of references.

THE BOTTOM LINE

"Scientific principles and discussions of the biological relationships and organisms that can be demonstrated in bottles is very solid, sound, and accurate."

"Highly recommended!"

WHAT THE REVIEWERS SAID...

NAAEE GUIDELINES	STRENGTHS	THINGS TO CONSIDER
Fairness and Accuracy	Accurate. Presents information in a thoughtful, appropriate, and well-referenced way. Techniques are appropriate for urban as well as rural situations.	
Depth	Interdisciplinary. Excellent presentation of environmental science concepts from a range of disciplines: chemistry, soil science, botany, entomology. Appropriate for a wide range of learners. Connections drawn from local to global scales.	Not tied to a conceptual framework.
Emphasis on Skills Building	Hands-on. Builds on observing, collecting, analyzing, and modeling. Encourages critical thinking and process skills.	
Action	In some activities, students examine the environmental consequences of their behavior and evaluate the choices they can make. Can easily be adapted to include action-oriented activities.	Individual and community action are not really a focus.
Instructional Soundness	Focuses on scientific method and hands-on discovery. Caters to a variety of learning styles and encourages cooperative learning. Students build from previous knowledge to gain understanding. Appropriate for a variety of settings.	Doesn't stress interdisciplinary teaching. Assessment strategies not included.
Usability	Clear and easy to use, with good activities and illustrations. Easily adapted for all grade levels. Materials needed are inexpensive and easy to find.	

"Though not a biodiversity curriculum per se, this guide presents a wealth of methods and ideas for investigating biodiversity and related ecological principles, particularly on a scale where biodiversity is greatest and (usually) least recognized: among insects, microbes, and other small critters. Perfectly suited for classroom exploration in small spaces."

Windows on the Wild "The Biodiversity Collection"

CONNECTIONS: THE LIVING PLANET

LIFE AND THE PLANET: The Sun-Powered Planet, The Web of Life, You and the Environment

PEOPLE AND THE PLANET: Earth-Friendly Cities, Tools for a Green Planet, A World of Resources, Healthy People, Healthy Earth, The Earth Feeds Us

PLANETARY CHANGE: The Remarkable Rainforest, Endangered Wildlife, Water in Our World, The Air Around Us

GRADES LEVELS: 4 AND UP

Milton McClaren and Bob Samples, Writers
Publisher: Ginn Publishing Canada, Inc.
3771 Victoria Park Ave.
Scarborough, ON M1W 2P9 Canada
(416) 497-4600 or (800) 361-6128
fax: (800) 563-9196

$9.35 + s&h • (15% discount for schools)
©1993-1995

Student Books, 48 pages

Teacher's Guides, 32-40 pages

SUBJECTS

Science,
Social Studies,
and
Language Arts

IN A NUTSHELL

Connections: The Living Planet is a series of 12 books organized around three key environmental themes listed above. *Life and the Planet* includes three books that address basic concepts about ecology and life on Earth. *People and the Planet* contains five books that address the requirements of human life. *Planetary Change* contains four books that explore ways in which human activities influence changes in Earth's ecosystem. *Connections* facilitates the cycle from simple awareness to knowledge, and from knowledge to action, by encouraging students to think about systems; think in time–forecast, think ahead, and plan; think critically about value issues; work cooperatively with other people; and develop an aesthetic response to the environment. *Connections* uses prose readings, fiction, poetry, songs, and activities to help students understand the role they can play in creating positive environmental change. The teacher's guide to each book provides background information, suggestions on using the resource material provided, discussion questions on issues that arise from the readings, and learning extensions.

THE BOTTOM LINE

37

"Student books are very nice–attractive, interesting, informative, and thought provoking at a light, easy level."

WHAT THE REVIEWERS SAID...

NAAEE GUIDELINES	STRENGTHS	THINGS TO CONSIDER
Fairness and Accuracy	Accurate and well-written material. Balanced approach to issues, particularly the more science-based topics. In some cases, pro/con is the basis of the lesson. Diversity of perspectives is presented.	
Depth	Good linking of concepts. Topics and issues are put in historical, cultural, and economic contexts. Local to global scales are presented.	Could use more teacher background to help address complex issues.
Emphasis on Skills Building	Students are encouraged to arrive at their own conclusions, research issues, and take action.	Although student books contain excellent readings, there is limited discovery and hands-on learning.
Action	Students are encouraged to take action and reflect on the consequences of their behavior.	More guidance may be needed to help some teachers facilitate individual and group action projects.
Instructional Soundness	Interdisciplinary, particularly with language arts. Assessment suggestions included in teacher's guide.	Limited experiential learning opportunities. More teacher centered than learner centered.
Usability	Student books are attractive, readable, and interesting.	Teacher's guides are primarily question-and-answer format.

"Although it's stated that these are for grades four and up, they probably wouldn't be appropriate beyond the middle school level."

"Would be most valuable when used as part of a larger program with additional environmental education resources."

Windows on the Wild "The Biodiversity Collection"

CONSERVATION BIOLOGY

GRADE LEVELS: 11-12

Robert B. Blair and Heidi L. Ballard, Writers
Center for Conservation Biology
Stanford University, Stanford, CA
Publisher: Kendall/Hunt Publishing Company
4050 Westmark Dr.
Dubuque, IA 52002-1840
(800) 228-0810

$49.90 s&h • ©1996

Student Workbook, 83 pages

Teacher's Guide, 265 pages

SUBJECTS

Sciences,
Social Studies,
and
Math

IN A NUTSHELL

This is real science–activities reflect the problems and questions facing conservation biologists as well as politicians, economists, and citizens. Students read and answer thought-provoking questions, formulate hypotheses, and conduct experiments. Activities include role playing and outdoor explorations of biological diversity in vari... Major themes investigated include the value of biodiversity, species diversity and the impact of human disturbance, ecosystem services and human dependence on biodiversity, importance of the effects of edges on habitat, principles of island biogeography, habitat fragmentation, and causes of species extinction. Students are also encouraged to apply their new knowledge by designing a nature reserve. The lessons focus on group work and project-oriented activities to appeal to the multiple abilities of students and to encourage cooperative instead of competitive learning. Learner-centered activities help students see connections among the various concepts presented. Each lesson in the curriculum ends with a section called "Teacher Tips," which is composed of suggestions from high school teachers who used the curriculum in their classrooms.

THE BOTTOM LINE

"I would have *loved* this as a unit when I was in high school."

WHAT THE REVIEWERS SAID...

NAAEE GUIDELINES	STRENGTHS	THINGS TO CONSIDER
Fairness and Accuracy	Well referenced, excellent background information. Encourages students to collect and analyze data.	Scientist-centered approach.
Depth	Articles, activities, and suggested videos provide good context and depth.	Focus is on science, not as much on cultural and economic relationships. Might be too in-depth for some situations.
Emphasis on Skills Building	Materials encourage students to think critically, hone field skills, forecast, plan, and analyze.	Issues analysis is limited in its focus on economics and conflict resolution.
Action	The role of the biologist in protecting biodiversity is well explored and is the focus of this curriculum.	Doesn't emphasize individual and community action.
Instructional Soundness	Clear goals and objectives. Balance of indoor and outdoor activities.	Relevance to learners' daily lives could be stronger. Could be more interdisciplinary.
Usability	Organized presentation. Teacher's guide includes background information, transparencies, keys, and resource lists. Student workbooks complement teacher's guide.	

"Could be more effective at resolving conflicts affecting biodiversity by integrating nonbiologist perspectives."

"This *is* about conservation biology and, while not wildly innovative, it is intelligent and varied enough to keep students engaged."

Windows on the Wild: "The Biodiversity Collection"

ECO-INQUIRY:
A GUIDE TO ECOLOGICAL LEARNING EXPERIENCES FOR THE UPPER ELEMENTARY/MIDDLE GRADES

GRADE LEVELS: UPPER ELEMENTARY AND MIDDLE SCHOOL

Kathleen Hogan, Writer

Publisher: Kendall/Hunt Publishing Company
4050 Westmark Dr.
Dubuque, IA 52002-1840
(800) 228-0810

$31.45 + s&h • ©1994 • 392 pages

IN A NUTSHELL

Eco-Inquiry is made up of three modules focusing on food webs, decomposition, and nutrient recycling. It embeds hands-on science within thematic, multidimensional learning experiences. The modules contain investigations that build students' understanding of ecological processes in their local environment. The modules present real-world projects and challenges that unfold over time. Each module lasts from 4-7 weeks and can stand alone or be used in sequence at one or several grade levels. Throughout *Eco-Inquiry*, students "do" science to learn what science is all about. Research teams plan and carry out investigations that build on previous studies, complete peer reviews, and share their ideas and findings in diverse ways. The *Eco-Inquiry* guide includes classroom-tested lesson plans with practical teaching strategies, materials needed, expected learner outcomes, student activity and observation sheets, assessment strategies, cross-curricular extensions, resource lists, and a glossary.

SUBJECTS

Primarily Science,
with interdisciplinary connections

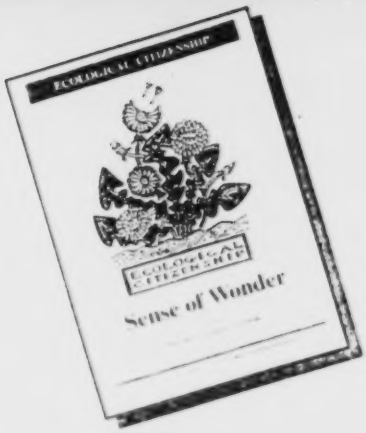
THE BOTTOM LINE

"Connects to the students' own lives."

WHAT THE REVIEWERS SAID...

NAAEE GUIDELINES	STRENGTHS	THINGS TO CONSIDER
Fairness and Accuracy	Straightforward and accurate. Well-tested, reviewed, and documented materials.	
Depth	Many concepts are covered in depth. Student data collection and research fosters a deeper understanding of the topics. Focus is on local environment.	Some educators might want more background information.
Emphasis on Skills Building	A student-directed, cooperative learning process. Focuses on data gathering, analyzing, role playing, and critical thinking.	
Action	Action is primarily covered in the classroom through role play and simulation. A few activities involve students in the community.	Limited focus on individual and community action.
Instructional Soundness	Student-centered and interdisciplinary material. Provides for a variety of learning styles. Objectives, strategies, and assessment ideas are given. Mix of learning environments.	
Usability	Good variety and quality of student pages. Does not require expensive equipment.	Best for students who work well in groups with little teacher direction or supervision. Variety of fonts, boxes, and formats can be confusing.

"This solid science foundation teaches data collecting and analysis, graphing, journal writing and research."



ECOLOGICAL CITIZENSHIP

Sense of Wonder
Neighborhood Communities
Solid Waste and Recycling
The Air Connection

GRADE LEVELS: PRE K-8

Pre K-K, Sense of Wonder;
3-5, Neighborhood Communities;
3-5, Recycling;
6-8, The Air Connection

Publisher: The Chicago Academy of Sciences
2060 North Clark St.
Chicago, IL 60614
(773) 549-0606 ext. 3067
email: casedu@chias.org

$34.95 + s&h • ©1996 • 64-68 pages

SUBJECTS

Science,
Social Studies,
and
Citizenship

IN A NUTSHELL

Ecological Citizenship (Eco Cit) is an urban environmental education program designed specifically to engage students, parents, teachers, and the community. Eco Cit uses a multidisciplinary, action-oriented ecology curriculum that involves hands-on explorations of environmental issues that affect the community. In *Sense of Wonder*, students develop an appreciation for natural things by observing nature's cycles in their neighborhood. Through observation, evaluation, and experimentation, they become familiar with the needs and wants of a community and its individuals. In *Neighborhood Communities*, students learn about ecosystems and the effects of human activities on natural communities. Students learn about cycles and relationships in ecosystems by investigating succession, decomposition, and plant and animal relationships. Students also explore their own changing community and implement projects to improve it. In *Solid Waste and Recycling*, students learn that increased consumption contributes to the solid-waste crisis and that everything we throw away has an impact. Students experiment with various packaging materials to find ways to package items in the most environmentally friendly way and learn to identify items that can be recycled, reused, and/or reduced. In *The Air Connection*, students learn that air pollution affects everyone. They conduct experiments to determine local air quality and discover issues such as acid rain, the depletion of the ozone layer, and the greenhouse effect. Students experiment with acids, bases, and air pollution, and they examine their own impact on air quality. Each guide contains the "Ecological Citizenship Framework," notes for the teacher on topics including learning outcomes, the constructivist theory of instruction, cooperative learning techniques, and internet expeditions. Activities include objectives, time needed, materials, safety precautions, step-by-step procedures, assessment suggestions, and extension ideas. A list of references is also provided. (Note: Only four of the curriculum's nine books were reviewed.)

THE BOTTOM LINE

"Lots of outdoor activities that can be used in urban areas–strong action focus."

WHAT THE REVIEWERS SAID...

NAAEE GUIDELINES	STRENGTHS	THINGS TO CONSIDER
Fairness and Accuracy	Accurate. Information presented is primarily basic science and ecology. Students are encouraged to inquire, explore, and develop their own opinions. Various perspectives are given.	Could use more focus on the complexity of the issues.
Depth	Clear conceptual framework. Numerous ecological concepts are presented in a continuum within a social context. Emphasis is local, but also covers larger scale issues.	
Emphasis on Skills Building	Focuses on skills building. Encourages critical and creative thinking. Focuses on communicating, learning cooperatively, and drawing conclusions.	
Action	Strong action emphasis. Students learn that they have a personal stake in environmental issues and are encouraged to take action, particularly at the local level.	Could use additional support for teachers in facilitating and carrying out action projects.
Instructional Soundness	Objectives and outcomes clearly stated. Learner-centered and interdisciplinary material. Encourages cooperative learning. Caters to diverse learning styles. Mix of learning environments. Assessment suggestions are provided. Teacher tested.	
Usability	Well organized and formatted. Easy to use. Student pages are easy to copy. Many resources cited. In-service training available.	Developed for Chicago, but can be adapted for other areas.

"This is a very well-organized and thorough series of curriculum packages covering important ecology topics through an urban classroom perspective."

ECOLOGY FOR ALL AGES:
DISCOVERING NATURE THROUGH ACTIVITIES FOR CHILDREN AND ADULTS

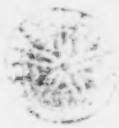
GRADE LEVELS: CHILDREN AND ADULTS

Jorie Hunken, Writer
Publisher: The Globe Pequot Press
6 Business Park Rd.
Old Saybrook, CT 06475
(860) 395-0440 or (800) 243-0495
email: info@globe-pequot.com
web: http://www.globe-pequot.com

$16.95 + s&h • ©1994 • 194 pages

SUBJECTS

Science,
with an emphasis on
ecology



IN A NUTSHELL

This book focuses on habitats, natural systems, and species, emphasizing how all three are linked. Chapters focus on specific habitats, and each chapter includes typical examples of nutrient cycles, seasonal changes, and successional and historical events. Each chapter also includes background information and activities that illustrate the main points and encourage understanding, involvement, and curiosity. Examples of some of the environmental problems that directly affect different habitats are also presented, along with suggestions for what people can do to help solve the problems. Chapters include Backyard Ecology, Water Systems, Fields and Borders, Trees and the Woods, and Dry Zones. Activities contain background information, a list of materials needed, and step-by-step procedures. A bibliography and index are included.

THE BOTTOM LINE

"Describes a variety of simple outdoor observational activities for kids."

WHAT THE REVIEWERS SAID...

NAAEE GUIDELINES	STRENGTHS	THINGS TO CONSIDER
Fairness and Accuracy	Accurate. Primarily natural history.	Limited presentation of problems and issues (not really the intention of this material).
Depth	Appropriate for purpose of book. Adequate background.	Primarily natural history; limited focus on multiple perspectives, variety of scales, and causes and consequences of environmental problems.
Emphasis on Skills Building	Encourages a logical thinking process. Applies skills to issues. Mix of individual and group activities.	Limited encouragement for students to develop their own opinions and solutions.
Action	Most chapters end with action activities. Encourages understanding of personal environmental responsibility.	Action activities are simple, although may be appropriate for purpose of book. Limited focus on collaborative action.
Instructional Soundness	Lots of inquiry and observation. Hands-on activities. Considers a variety of learning styles. Mix of indoor and outdoor activities.	Some reviewers felt a systematic presentation of activities or a conceptual framework would be helpful. Interdisciplinary connections are not made.
Usability	Well-organized, user-friendly design. Good introduction. Adequate background information. Activities are clearly explained.	No masters. Permission to copy is not stated.

"I would recommend this book for urban educators since many of the animals, plants, and habitats represented can be found in urban areas."

"This book would be useful for educators and parents who want to help students explore the natural areas in their region."

Windows on the Wild "The Biodiversity Collection"

ECONOMICS AND THE ENVIRONMENT

GRADE LEVELS: HIGH SCHOOL

Curt L. Anderson, Writer
Publisher: National Council on Economic Education
1140 Avenue of the Americas
Attn: Order Department
New York, NY 10036
(800) 338-1192
email: ncee@eaglobal.org
web: http://www.nationalcouncil.org

$49.95 + s&h • ©1996 • 239 pages

SUBJECTS

Economics,
History,
Government,
Natural Sciences,
and
Environmental Studies

IN A NUTSHELL

Economics and the Environment highlights the relationship between the environment and the economy. It introduces students to using economics so they can analyze environmental problems and find solutions. This resource manual consists of an overview, lessons, and a glossary. The overview provides a summary of the key concepts developed in the lessons and their relationship to each other. The 20 lessons are organized into seven units. Each unit concentrates on key concepts that emphasize how natural resources are used, why they are sometimes overused or misused, and how economic incentives can provide for both economic prosperity and environmental protection. Each lesson includes an introduction, economic concepts, environmental concepts, objectives, lesson description, time required, materials, procedure, and extension activities. Activities include case studies, graphs, tables, worksheets, simulation materials, and blackline masters. Lessons in *Economics and the Environment* reinforce each other, but they are designed so that each can stand alone.

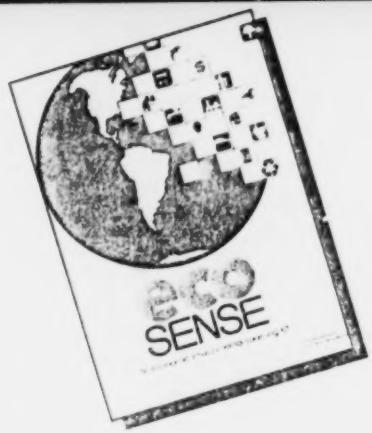
THE BOTTOM LINE

"Thorough, although somewhat dry. Materials on the economic aspect of environmental decision making are important."

WHAT THE REVIEWERS SAID...

NAAEE GUIDELINES	STRENGTHS	THINGS TO CONSIDER
Fairness and Accuracy	Accurate. Generalized to cover a wide range of circumstances regarding economic choices, uses, and consequences. Balanced look at issues. Students are encouraged to analyze and form their own opinions.	References not cited.
Depth	Broad coverage. Economics is the unifying theme, and environmental issues are viewed through basic economic principles. Variety of scales applied to problems.	
Emphasis on Skills Building	Encourages critical and creative thinking. Students use economic analysis to draw conclusions about human behavior and environmental issues. Develops an understanding of the need for mediation and resolution of environmental problems.	
Action	Forces students to think about the environmental consequences of their individual economic behavior.	Does not address action to be taken on any specific environmental issue. Not the purpose of the material.
Instructional Soundness	Goals and objectives are clearly stated. Interdisciplinary. Worksheets have well-defined questions and answers.	Primarily classroom worksheets and graphs; paper and pencil and calculator activities. Limited connection to students' lives and the decisions they must make every day.
Usability	Activities are well explained. Good background and support for educators. Worksheets are easily copied.	Some reviewers felt the graphics, writing style, and examples could be more creative and engaging. Does not make the topic come alive.

"Encourages critical and creative thinking via analysis of both economics of environmental problems and human behaviors. This perspective is very valuable."



ECO SENSE:
AN ECONOMIC ENVIRONMENTAL LEARNING KIT

GRADE LEVELS: 2-6 AND 7-12

Debbie Johnston, Writer
Publisher: Business Economics Education Foundation
123 N. Third St., Suite 504
Minneapolis, MN 55401
(612) 337-5252

$25.00 • ©1993

3-Ring binder: Elementary, 93 pages

3-Ring binder: High School, 87 pages

SUBJECTS

Elementary:
science, social studies, ecomonics language arts, math, art, and music

High School:
economics, home economics, life sciences, health education, and math

IN A NUTSHELL

Through the integration of environmental and economic principles, *Eco Sense* teaches students about the profound impact that they, their families, and their communities can have on the environment. Through interactive lessons, students learn about the problems of scarcity inherent to economic growth and development, coupled with concerns for the environment. Each unit begins with objectives, economic concepts, and environmental concepts, followed by background information. Each unit is divided into three sections with many accompanying activities and handouts. The elementary kit contains three teaching units: (1) The Economic Question; (2) The Environmental Problem; and (3) What Can We Do? The Solution: Business, Consumers, and Government Working Together. The high school kit contains five teaching units and focuses on solid waste: (1) The Environment and Solid Wastes; (2) What Is Best? Waste Management Methods; (3) What Can I Do? Consumer Demand; (4) What Can Businesses Do? Responses and Initiatives; and (5) What Can Government Do? Defining the "Rules of the Game." This curriculum is interdisciplinary in its approach, and activities are designed for integration into other subject areas. A glossary and resource guide are included.

THE BOTTOM LINE

"Excellent ideas and activities for getting students involved in real activities in their communities–discovery takes place throughout."

WHAT THE REVIEWERS SAID...

NAAEE GUIDELINES	STRENGTHS	THINGS TO CONSIDER
Fairness and Accuracy	Accurate. Offers different ways to look at problems and a variety of possible solutions, citing strengths and weaknesses of each.	Reviewers felt materials stressed traditional resource economic views and cost/benefit analysis.
Depth	In-depth focus on concepts and their context. Units are comprehensive. Good overview and background information for teachers.	Limited background materials to introduce concepts and issues to students that have not been exposed to economics. Could use a more in-depth discussion of the importance of land, water, and air to the economic system.
Emphasis on Skills Building	Applies skills to issues. Provides many opportunities for creative and critical thinking. Connections made to real-life issues.	Elementary level emphasizes interdisciplinary connections more than high school level does.
Action	Lots of activities that encourage students to look at their own actions. Uses real data and real situations. Emphasis on community investigation with regard to environmental impact. Gives examples of action.	Could give more information and examples about how to get things accomplished as a group. Emphasis is more on reusing, reducing, and recycling rather than on alternate sources of materials such as renewable fuels and technological improvements that have resulted from scarcity.
Instructional Soundness	Good emphasis on creative thinking skills. Provides for a variety of learning styles. Good connections to literature and other curriculum areas, particularly at the elementary level. Expands learning environment outside the classroom.	Assessment could be stronger. Limited suggestions for evaluating learner outcomes. Could be more learner centered in instructional approach. Relies heavily on teacher direction. Tendency to simplify activities too much. Could use more creativity.
Usability	Well organized, clear, and logical. Flexible; can use some or all of the materials. Binder format is easy to use.	A lot of reading or studying is required of the teacher, with emphasis on teacher-directed presentation of concepts and content. Geared to Minnesota in examples and data.

"Depth of material and content is very good–presents standard accepted analyses of environmental and economic issues of waste management."

"Good integration of environmental issues with ecological concepts."

ENDANGERED SPECIES

ON COMMON GROUND: CRITICAL ISSUES/CRITICAL THINKING EXPERIENCES FOR YOUTH SERIES

GRADE LEVELS: 7-9

Mary Kroll, Writer
Publisher: National 4-H Council
Supply Service
c/o Crestar Bank
P.O. Box 79126
Baltimore, MD 21279-0126
(301) 961-2934
email: 4hsupply@fourhcouncil.edu

$3.00 + s&h • ©1996 • 26 pages

SUBJECTS

Science
and
Social Studies

IN A NUTSHELL

This guide includes activities to help students enhance their critical thinking skills while learning about endangered species. The materials are very student centered, and activities are designed to help students learn for themselves, while teachers and leaders facilitate the process. The teacher or leader acts as a facilitator since the activities are designed to help participants learn for themselves. Students are encouraged to work in small collaborative teams. This approach provides experience in communicating ideas, resolving conflict, and working with others. Some activities ask students to take positions on an issue. Chapters include an introduction to endangered species, how extinction affects the world, how human needs balance with those of plants and animals, and what people can do. Activities include goals, materials needed, time required, step-by-step instructions, and extensions. A glossary, resource list, and poster are included.

THE BOTTOM LINE

"Industry, government, universities, and private foundations collaborated on these materials, creating a very real-world and balanced approach to complex and often emotional environmental and economic issues."

WHAT THE REVIEWERS SAID...

NAAEE GUIDELINES	STRENGTHS	THINGS TO CONSIDER
Fairness and Accuracy	Information is balanced. Diverse viewpoints are presented. Primary sources are cited.	
Depth	Some concepts related to endangered species are presented in context of human and historical perspectives.	Includes minimal background information. Some educators may need additional information to teach about related issues such as habitat loss and genetic diversity.
Emphasis on Skills Building	Very strong on creative and critical thinking, communication, and conflict resolution.	Environmental issues take a back seat to skills building in this curriculum. Additional materials would be required to teach the environmental concepts needed to carry out the activities.
Action	Role playing and other activities help students understand how an individual can be important in environmental policy, decision making, and discourse.	Citizen action is not directly emphasized in the activities.
Instructional Soundness	Learner centered and very participatory. Builds on students' prior knowledge. Interdisciplinary.	Primarily discussion and debate. Limited focus on assessment.
Usability	Clear instructions. Layout is easy to use and readable. Adaptable for a variety of audiences and age groups.	Could use more background information, illustrations, and photos.

ENVIRONMENTAL EDUCATION MODULE ON BIOLOGICAL DIVERSITY FOR SECONDARY EDUCATION:
A TEACHER TRAINING WORKSHOP TEXT

GRADE LEVELS: 9-12
with some application at grades 7-8

Dr. R. Ben Peyton, Dr. Henry Campa, III, and Dr. Scott R. Winterstein, Writers
(Michigan State University)
Sponsored by UNESCO/UNEP
Ordering and price information not available at press time

©1992 • 152 pages

SUBJECTS

Science,
History,
Political Science,
and other social sciences

IN A NUTSHELL

This module is a reference for educators. It provides a framework of information and models to guide the preparation of educational experiences and materials. The module is organized into three major sections. Section 1 introduces biodiversity and relates biodiversity education to environmental education. It provides the groundwork for environmental education development, goals, and strategies. Section 2 presents an academic framework for understanding biodiversity problems and issues. While focusing on the ecology and science of biodiversity problems, it presents a broader scientific, technological, and sociological view of what can be done to preserve and manage biodiversity locally, regionally, and globally. Integration of the sociological and ecological dimensions of biodiversity issues is also discussed. Section 3 attempts to infuse biodiversity and environmental education into secondary education programs, and a framework is presented for identifying opportunities to infuse biodiversity and environmental education into various subject areas. The activities have been selected to reflect a broad cross section of the framework presented, but are not intended to be exhaustive. Activities and case studies include A Moral Dilemma; Biogeography (People, Places, and Biodiversity); The Nature of Change; Ethnobotany; Biodiversity in Action; and Selling the Public on Biodiversity. Recommendations for using this module to develop curriculum materials and to train educators are also given.

THE BOTTOM LINE

"Super background material for educators and students."

"Does a good job of looking at many sides of an issue and having students think critically."

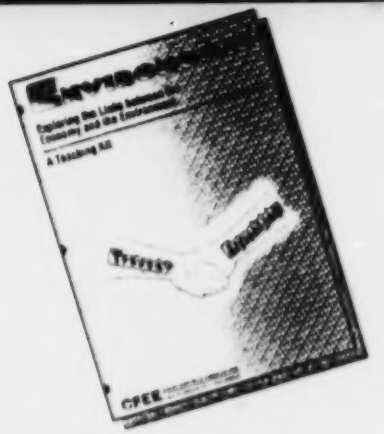
WHAT THE REVIEWERS SAID...

NAAEE GUIDELINES	STRENGTHS	THINGS TO CONSIDER
Fairness and Accuracy	Good information about biodiversity for educators.	Initial introduction does not examine various competing theories. Some background information seems to be out-of-date.
Depth	Thorough, in-depth examination of concepts in context.	
Emphasis on Skills Building	Focuses on data gathering, analysis, drawing conclusions, and application. Encourages creative and critical thinking.	
Action	Fosters an understanding of issues and thinking about the roles of individuals and groups.	Does not directly facilitate action projects in the community.
Instructional Soundness	Caters to diverse learning styles. Focuses on real-life issues. Good use of constructivist approach.	Focuses on classroom activities.
Usability	Useful for teachers. Logical progression. Adaptable to different grades. Activities are straight forward, easy to use, and contain enough supporting data for students.	Panel reviewed a draft.

"This is a great place to start for educators who want to focus on biodiversity and environmental education."

"Great resource–excellent background for teachers as well as a collection of activities for use with students."

Windows on the Wild "The Biodiversity Collection"



ENVIRONOMICS:
EXPLORING THE LINKS BETWEEN THE ECONOMY AND THE ENVIRONMENT

GRADE LEVELS: HIGH SCHOOL

Gary Rabbior, Writer
Publisher: Canadian Foundation for Economic Education
2 St. Clair Ave. West, Suite 501
Toronto, ON M4V 1L5 Canada
(416) 968-2236 fax: (416) 968-0488
email: efee968223@aol.com

$15.00 + s&h • Canadian for members

$20.00 + s&h • Canadian for nonmembers

©1996 • Binder: 7 Sections

SUBJECTS

Economics
and
Environmental Science

IN A NUTSHELL

Environomics is designed to help educators from a wide variety of subject areas teach about the relationship between the environment and the economy. The guide contains a mix of student readings and activities that focus on production activities within Canada's economy that have generated many of Canada's environmental problems; on consumers, households, and governments that have also contributed to Canada's environmental problems; and on how producers, consumers, households, and governments hold the key to solutions that can sustain and improve Canada's environment. *Environomics* endorses and supports the goal of sustainable development and holds out the hope that we can meet the challenge and be innovative, creative, and concerned enough to find the means to achieve a sustainable environment without forcing dramatic economic sacrifice on people. The guide contains the following seven units: Introduction to the Economy/Environment Relationship; The Economy and the Environment–It Begins with You; EnviroPreneurs; Production: Markets–Problem? Solution?–or Both?; The Role of Government; and Putting It All Together. Each unit contains learning outcomes, a content summary, background reading, student handouts (newspaper articles, charts, etc.), student activities, overhead transparencies, and a suggested implementation strategy.

THE BOTTOM LINE

"Good materials for teaching about the connections between the economy and the environment."

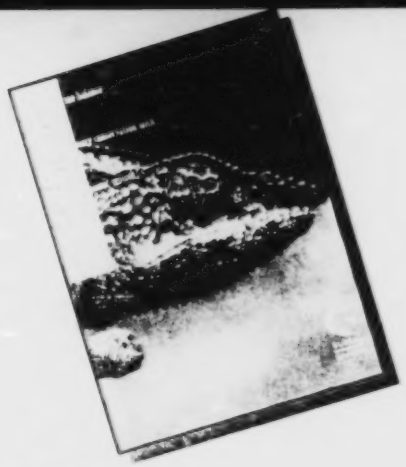
WHAT THE REVIEWERS SAID...

NAAEE GUIDELINES	STRENGTHS	THINGS TO CONSIDER
Fairness and Accuracy	Presents different perspectives and viewpoints on the issues. Encourages student inquiry.	Assumes that traditional economics can address all environmental problems. Information and activities are biased toward continued economic development and addressing environmental problems through market-driven solutions. Users not agreeing with this approach will need to augment the kit with their own activities.
Depth	Provides a large volume of information about complex concepts and ideas. Addresses historical, geographical, political, and cultural relationships. Attention is given to local, regional, and global scales.	Focuses on Canadian economy but can be adapted. Several reviewers felt there was too much material for teachers to sort through and use in secondary grades and that many students would have a tough time with some of the concepts.
Emphasis on Skills Building	Encourages creative and critical thinking. Risk assessment and cost/benefit analysis skills are addressed.	Activities could provide for more practice and application of skills.
Action	Materials promote civic responsibility. Students develop an understanding of personal stake and sense of responsibility.	Could use more support for facilitating individual and group action projects.
Instructional Soundness	Learning outcomes and suggested implementation strategies are provided. Contains some interdisciplinary activities. Connections are made to students' everyday lives.	Contains many text-heavy activities that require a lot of reading. Could use more variety in activity types. Does not seem to provide for diverse learning styles. Could use assessment ideas.
Usability	Guide is well organized and format is consistent. Binder format provides for easy copying of student handouts and overhead transparencies.	Could use more teacher support (e.g., sidebars with time needed, materials, assessment, enrichment, etc.). Could use a glossary.

"This curriculum would be useful for teachers who want to address neoclassical economic theory, current mainstream thinking regarding economics and sustainability, and the impact of public policy and consumer behavior on the production of goods and services."

"The materials in each unit are biased toward resource development, and they reinforce the assumption that we must have economic growth."

Windows on the Wild "The Biodiversity Collection"



GLOBAL ENVIRONMENTAL CHANGE SERIES

Biodiversity
Deforestation

GRADE LEVELS: 9-12

Publisher: National Science Teachers Association
1840 Wilson Blvd.
Arlington, VA 22201-3000
(800) 722-6782
web: http://www.nsta.org

$12.95 + s&h • ©1997 • 61-64 pages each

SUBJECTS

Primarily Science,
with interdisciplinary connections

IN A NUTSHELL

The *Global Environmental Change Series* investigates global environmental changes from an interdisciplinary perspective, with an emphasis on science. The series teaches students how to gather a wide range of relevant information derived from pertinent areas of study. It encourages them to develop their own opinions in order to make decisions and solve problems. Both guides contain an introduction and background information; cumulative, hands-on classroom activities; and a resources list. *Biodiversity* uses Costa Rica as a case study in balancing economic growth and resource conservation. It introduces students to basic scientific themes and equips them with tools to increase their understanding of biodiversity. Activities focus on defining biodiversity, quantifying biodiversity, becoming an amateur or "para" taxonomist, investigating life zones in Costa Rica, valuing biodiversity, and understanding the complexity of protecting and managing a tropical forest. *Deforestation* focuses on Washington state's Olympic Peninsula as a case study to provide a model for addressing deforestation's ecological and economic impacts. Activities focus on defining deforestation, ecological succession, soil erosion, habitat loss, and inhabitant species, and on understanding land use. Activities in both guides include background information, procedures, questions for discussion, suggestions for further study, and reproducible student pages.

THE BOTTOM LINE

"Information is accurate, and great lengths are taken to remain fair on controversial issues."

WHAT THE REVIEWERS SAID...

NAAEE GUIDELINES	STRENGTHS	THINGS TO CONSIDER
Fairness and Accuracy	Accurate. Information is presented in a fair and neutral fashion. Different viewpoints and a diversity of cultures are represented.	Unclear as to whether materials were reviewed by scientists or tested in classrooms. Background is not referenced.
Depth	Considers historical, cultural, and economic aspects of issues. Case study approach is excellent. Focuses on a variety of scales, from local to global aspects of environmental issues. Makes connections among issues.	No clear, conceptual framework or list of concepts addressed in each activity.
Emphasis on Skills Building	Focuses on creative and critical thinking. Good, hands-on activities. Encourages students to gather and analyze information to draw their own conclusions.	Not designed for development of action skills.
Action	Materials help students identify issues, think about multiple perspectives, and ponder solutions. List of conservation laws and agencies that are involved in deforestation and biodiversity issues is helpful.	Doesn't emphasize individual and group action projects or the link between issues and personal responsibility.
Instructional Soundness	Goals are clearly stated. Many opportunities for practical experience. Good variety of activities: research, observation, discussion, role playing, and cooperative learning. Strong focus on math, science, and social studies. Addresses a variety of learning styles. Extends learning environment beyond the classroom.	Some disciplines (e.g., language arts, fine arts) are poorly represented. Limited focus on assessing learner progress.
Usability	Clear, logical, and easy to use. Good background information. Can be adapted for a variety of grade levels.	

"Case study format is excellent–helps students apply new information in specific areas to regional and global issues that are similar."

GLOBAL ENVIRONMENTAL EDUCATION RESOURCE GUIDE

GRADE LEVELS: MIDDLE SCHOOL

Sharon H. Walker and Robert E. Caylor, Editors
Publishers: University of Southern Mississippi, Institute of Marine Sciences, and the J.L. Scott Marine Education Center and Aquarium
P.O. Box 7000
Ocean Springs, MS 39566-7000
(601) 374-5550
email: swalker@seahorse.ims.usm.edu

$10.00 + s&h • 1996 • 3 Ring Binder 358 pages

SUBJECTS

General Science, Earth Science, Life Science, Biology, Chemistry, and Social Studies

IN A NUTSHELL

The *Global Environmental Education Resource Guide* is designed for teachers who want to infuse global issues into their curriculum. The guide is not intended to be a comprehensive presentation of global issues; however, it provides teachers with selected activities that will help frame and clarify key issues associated with the global environment. The following topics are covered in the guide: acid rain, biodiversity, deforestation and desertification, greenhouse gasses, marine and estuarine pollution, overpopulation, ozone depletion, and sea level rise. Each section of the guide contains an introduction and overview of the topic and a series of related activities. Each activity includes subject areas, an issue statement, objectives, materials needed, procedures, evaluation suggestions, extension ideas, and a list of additional resources.

THE BOTTOM LINE

"A good resource–but not necessarily the best or most attractive curriculum. It would work best as a resource to a broader curriculum."

WHAT THE REVIEWERS SAID...

NAAEE GUIDELINES	STRENGTHS	THINGS TO CONSIDER
Fairness and Accuracy	Factually accurate. Offers a variety of theories and perspectives. For the most part, approach is fair and balanced.	A few activities are somewhat biased, particularly regarding industry.
Depth	Good focus on concepts. Valuable background material. Presents concepts in context of social, political, economic, science, and geographic frameworks.	A few activities are overly simplistic and limited in scope.
Emphasis on Skills Building	Good for building science skills through experimentation, data analysis, developing hypotheses, and observation. Activities encourage application of skills to analyze, resolve, identify, and research issues.	No scope and sequence of skills.
Action	Some activities and extension ideas include action projects, although emphasis is on content and science skills.	Limited suggestions for individual and group action. Limited support for developing action skills and facilitation of action projects.
Instructional Soundness	Learner-centered, hands-on activities. Includes a variety of activity types. Makes some connections to students' lives and interests. Developed and tested by teachers.	Primarily science.
Usability	Well organized. Good amount of background for teachers. Notebook format is easy to use and durable. Activity format is clear.	Some background information is extremely technical. Student worksheets and illustrations could be more creative and better designed.

"A wealth of information for teachers to pull basic information and/or activities regarding 'physical' environmental issues."

"A good source for global change information and science-experiment type activities."

GLOBAL ISSUES IN THE MIDDLE SCHOOL, 3RD EDITION

GRADE LEVELS: 5-8

Jacquelyn Johnson, John Benegar, and
Laurel R. Singleton, Writers
Publisher: Social Science Education Consortium
P.O. Box 21270
Boulder, CO 80308-4270
(303) 492-8154 fax: (303) 449-3925
email: singletl@stripe.colorado.edu

$21.95 + s&h • ©1994 • 208 pages

IN A NUTSHELL

This resource is designed to help students see the world as an integrated, interdependent system. The guide, which focuses on the local and global environment, contains 27 activities organized into five sections. The first section presents three activities designed to stimulate student thinking about the importance of learning about other parts of the world and the students' own relationships to these areas. The remaining four sections of the book reflect the "four essential elements of study in a global education" proposed by Willard M. Kniep in *Social Education* (November/December 1986, pp. 536-542). These elements are the study of human values, the study of global systems, the study of global issues and problems, and the study of global history. The activities are presented in a standard format. Each includes a brief introduction, a list of objectives, time required, a list of the materials needed, and step-by-step procedures. Some activities also include follow-up exercises, a list of related resources, teacher background information, and masters for student handouts. A list of resources with sections on organizations and materials is included.

SUBJECTS

Science
and
Social Studies

THE BOTTOM LINE

"Lots of reflection and consideration of U.S. kids' relationships to the global community."

WHAT THE REVIEWERS SAID...

NAAEE GUIDELINES	STRENGTHS	THINGS TO CONSIDER
Fairness and Accuracy	Encourages debate and consideration of different viewpoints. Focuses on exploration of values.	Sources of information are not always cited. Occasionally information is generalized or simplified.
Depth	Focuses on broad concepts and systems. Students encouraged to think on variety of scales, from local to global. Background information on some topics is excellent.	For some topics, background information is limited.
Emphasis on Skills Building	Focuses on critical thinking. Students evaluate issues and determine where they stand.	
Action	Fosters an understanding of individual and group relationships and responsibilities.	Facilitating action projects is not a focus of this material.
Instructional Soundness	Addresses a variety of intellects and learning styles. Concepts are tied to students' lives. Mix of individual, small-group, and large-group activities.	Primarily classroom or schoolyard activities. Does not show interdisciplinary connections. Assessment strategies are not included.
Usability	Format is clear, logical, and well designed. Easy to use. Activities are fun and creative and should engage students. Good introduction and bibliography.	

"Global environmental information, especially on biodiversity, is limited, but it provides a strong cultural view."

GLOBAL SYSTEMS SCIENCE SERIES

An Introduction	by Cary Sneider and Richard Golden
Changing Climate	by Cary Sneider and Richard Golden
Closing the Ozone Hole	by Cary Sneider and Richard Golden
Ecosystem Change	by Katherine Barrett
Energy Flow	by Alan Gould, John Erickson, Cary Sneider, and Katharine Barrett
Energy Use	by John Erickson and Alan Gould
Human Population Impact	by Cary Sneider and Richard Golden
Life and Climate	by Cary Sneider and Richard Golden
Losing Biodiversity	by Katharine Barrett

GRADE LEVELS: 9-12

Publisher: Lawrence Hall of Science
University of California
Global Systems Science
Berkeley, CA 94720-5200
email: csneider@uclink4.berkeley.edu

© coming fall 1998, mailing list address above
• 60-100 pages

IN A NUTSHELL

The *Global Systems Science Series* focuses on the study of how people interact with the natural environment and what we can do to achieve a more sustainable world. The course is divided into nine student guides, which can be used independently of one another and in any order. Each guide raises important questions for which there are no "correct" answers and each applies scientific knowledge to key global problems. Students are encouraged to search for possible solutions. The accompanying teacher's guides offer suggestions for class discussions, laboratory activities, and homework assignments, and includes data sheets for duplication. A goal of the program is to encourage student interaction and collaboration so students think about and care about what is really happening in our world.

SUBJECTS

Interdisciplinary,
combining chemistry, biology, physics, geology, oceanography, meteorology, economics, ethics, and many other perspectives–strong connections to math, history, and sociology

THE BOTTOM LINE

"These materials are comprehensive and futures-oriented in a thought-provoking way."

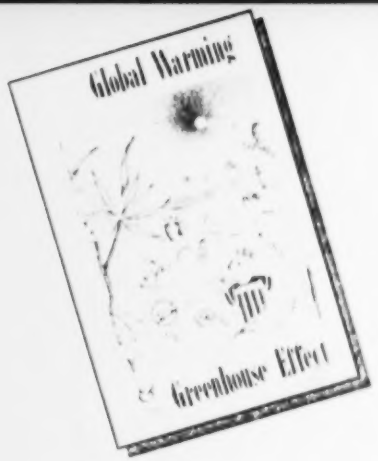
"This series is not afraid to present difficult and controversial issues."

WHAT THE REVIEWERS SAID...

NAAEE GUIDELINES	STRENGTHS	THINGS TO CONSIDER
Fairness and Accuracy	Abundance of factual information, usually presented in an unbiased manner. Reviewed and tested by 125 teachers. Emphasis given to women doing scientific research.	Some questions are not as open-ended as they could be. Doesn't always show all sides of an issue.
Depth	Good attention and linkages to different perspectives. Very thorough. Good emphasis on evolution of the human perspective. Good use of everyday situations to explain scientific concepts.	
Emphasis on Skills Building	Emphasis on thinking skills. Gets students to think about things in a new way. Positive emphasis on problem solving and critical and creative thinking.	
Action	Encourages students to explore various choices and take action. Considers ethical and moral issues without telling students what to think. Focuses on sense of personal stake and responsibility.	Action-skill activities focus on individual actions. Could give more emphasis to conflict resolution and working with others to solve environmental problems.
Instructional Soundness	Very student centered. Topics are relevant and maintain interest by focusing on things important to high school students. Strong connections to math, history, and sociology. Materials can be adapted for a variety of students. Includes many charts and graphics that summarize concepts.	Some charts are hard to follow. Could have more connections to the arts.
Usability	Writing is engaging.	Panel reviewed a draft. Final artwork was not included.

"Very good material put into a mediocre design."

"Good use of everyday situations to explain scientific concepts."



GLOBAL WARMING & THE GREENHOUSE EFFECT

GRADE LEVELS: 7-10

Colin Hocking, Cary Sneider, John Erickson, and Richard Golden, Writers
Publishers:
Lawrence Hall of Science
Great Explorations in Math and Science (GEMS) Program
University of California
Berkeley, CA 94720
(510) 642-7771
web: http://www.lhs.berkeley.edu/

$16.00 + s&h • ©1990 • 174 pages

IN A NUTSHELL

This guide focuses on global climate change and shows how scientific knowledge influences public debate and policy. It also shows the interconnections between science and technology, as well as among science, society, and the environment. Through a variety of laboratory activities, simulations, and discussions, students focus on global warming issues and explore the related social and ecological consequences. Students will improve their understanding of various scientific concepts, including the molecular model of heat, how energy is transferred, how objects attain a stable temperature, and the structure of the atmosphere. The unit helps students develop investigative skills as they conduct and analyze controlled experiments. Throughout the unit, students receive graphs of actual data to interpret and discuss. Students also look at their role as responsible citizens and examine what choices and actions they can take related to this issue.

SUBJECTS

Science
and
Social Studies

THE BOTTOM LINE

"This is an excellent resource for covering a topic that is not usually covered in-depth."

"Best for usability that I've seen."

WHAT THE REVIEWERS SAID...

NAAEE GUIDELINES	STRENGTHS	THINGS TO CONSIDER
Fairness and Accuracy	Good, clear explanations of science concepts, including uncertainties of predictive models and theories. Mentions a variety of viewpoints. Experiments allow students to understand concepts and form their own conclusions.	While both sides are presented, materials consider global warming as a serious environmental problem.
Depth	Clear presentation of facts and concepts. Hands-on activities give students an in-depth understanding of the issues. Focuses on basic science and issue analysis, as well as local, national, and global perspectives.	
Emphasis on Skills Building	Activities and experiments emphasize science process skills, investigative skills, and communication.	
Action	In a "World Conference" activity, students debate the issue and learn to cooperate in solving problems.	Outside of understanding the issues and differences of opinion, action is not emphasized.
Instructional Soundness	Activities encourage learners to build from prior knowledge. Connections made to students' lives are relevant and current. Activities are interesting and engaging.	Primarily classroom based. Limited assessment tools or suggestions.
Usability	Excellent, clear, and very informative teacher background material. Sketches and photos show how to do activities. Outline format makes it very easy to use.	Primarily classroom science; could include more ideas for how to adapt to other settings.

"Good activity-based presentation of science and global issues."

"One of the most teacher-friendly resources I have seen, especially for teachers who are not experts in this area."

HABITAT AND BIODIVERSITY

ENVIRONMENTAL ACTION PROGRAM

Student Edition
Teacher Resource Guide

GRADE LEVELS: MIDDLE AND SECONDARY SCHOOL

Developed by E2: Environment & Education
(The Tides Center)
Publisher: Dale Seymour Publications
P.O. Box 5026
White Plains, NY 10602-5026
(800) 872-1100
web: http://www.cs.com/dsp/

© coming in 1998

$13.95 Teacher Resource Guide • 158 pages (#HS36860)

$5.95 Student Edition • 103 pages (#HS36860)

SUBJECTS

General Science,
Biology,
and
Social Studies

IN A NUTSHELL

Habitat and Biodiversity is one of six modules in the Environmental Action Program. The program's mission is to empower students with the knowledge and skills necessary to make meaningful changes that can be carried into the future. The modules provide step-by-step instructions on how to investigate real-world environmental issues and present opportunities to learn and practice action skills in the context of these issues. In *Habitat and Biodiversity*, students study the importance of biological diversity, landscape management, xeriscaping, composting, and integrated pest management. The school is used as a research laboratory where students assess the current landscaping and then evaluate its present health and environmental impact. A step-by-step guide to creating an organic garden and seed bank is also included. This module contains 16 activities divided into sections called Explore the Issues, Analyze, Consider Options, and Take Action. Background information is provided in an issues-and-information section. Individual activities include key concepts, objectives, materials, vocabulary, procedures, follow-up activities (at home and in the community), blackline masters, and assessment ideas. A glossary, a resource list, and assessment tools (quiz, survey, forms) are also included.

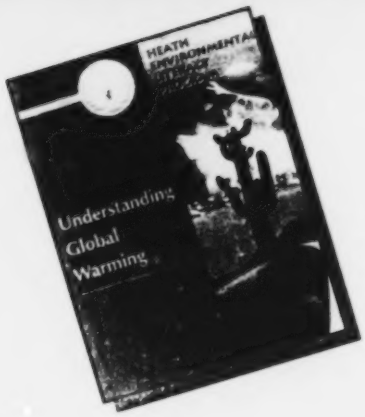
THE BOTTOM LINE

"This module provides a good series of activities that lead students to make choices and take action."

WHAT THE REVIEWERS SAID...

NAAEE GUIDELINES	STRENGTHS	THINGS TO CONSIDER
Fairness and Accuracy	Balanced approach (most information and issues are not controversial). Generally accurate.	In some cases, terms are not defined clearly (e.g., habitat as distinguished from ecosystem). Occasionally oversimplifies major concepts and issues.
Depth	Focuses on schoolyard habitats and local biodiversity. Good background information on organic gardening and native landscaping. Background section supports activities.	Limited focus on regional and global biodiversity.
Emphasis on Skills Building	Students collect and organize information, analyze, synthesize, draw conclusions, formulate possible solutions, and find ways to take action (primarily related to local habitat).	Limited focus on controversial issues and conflict resolution skills.
Action	Action oriented. Promotes and assists the teacher in facilitating well-planned action projects. Local focus helps students develop a sense of personal stake and responsibility.	Primarily focuses on schoolyard habitats.
Instructional Soundness	Learner centered. Includes a mix of indoor, outdoor, and individual and group activities. Caters to diverse learning styles. Connections are made to students' everyday lives. Cross-curricular suggestions and assessment ideas are given.	
Usability	Clear and consistent layout and instructions. Activities are well organized.	Most appropriate for schools with large schoolyards, or a nearby plot or outdoor area.

"Provides the guidance needed for teachers to help students identify and implement a schoolyard action plan."



HEATH ENVIRONMENTAL LITERACY PROGRAM

Protecting the Ozone Layer
Understanding Global Warming

GRADE LEVELS: HIGH SCHOOL

William A. Andrews, Writer
Publisher: ITP Nelson Canada
1120 Birchmount Rd.
Scarborough, ON M1K 5G4 Canada
(800) 268-2222 or (416) 752-9100 ext. 380

$17.65 + s&h Canadian • 94 pages

©1994 Protecting the Ozone Layer

©1995 Understanding Global Warning

SUBJECTS

Science and
Social Studies

IN A NUTSHELL

These books are designed to help students recognize bias and learn to make more environmentally sound choices. Each book is set up as a series of key questions focused on one important aspect of the issue. The questions, and the discussions they stimulate, are designed to provide most of the data needed to participate in the last section, "Taking Action!" That section includes investigations, case studies, and research projects. Each book also contains an issue study guide to help check understanding of the issue, a databank of reference tables and other facts and figures, a superglossary, and an index. *Protecting the Ozone Layer* focuses on the following key questions: What is the ozone layer and why are people so worried about it? What is ultraviolet radiation and how does it help to maintain a natural balance in the ozone layer? What has upset the ozone layer's natural cycles in recent years? How will ozone layer depletion affect living things, and how can we protect ourselves? What chemicals are depleting the ozone layer, and what are they used for? What are we doing to protect the ozone layer, and what more should we do? *Understanding Global Warming* includes the following questions: Is our climate getting warmer? What can past climate change tell us about possible climate change in the future? How do human activities contribute to climate change? What changes in global climate are protected for the future? How could living things be affected by global climate change? What are we doing to address global climate change, and what more should we do?

THE BOTTOM LINE

"These materials maintain sufficient objectivity and stay well within the limits of respect and fairness on these issues."

WHAT THE REVIEWERS SAID...

NAAEE GUIDELINES	STRENGTHS	THINGS TO CONSIDER
Fairness and Accuracy	Gives a balanced presentation of the issues. Covers controversies well. Facts are well referenced, with sources indicated. Several expert reviewers per book.	
Depth	Conceptual framework included. Concepts from a range of disciplines are presented in a clear and logical discussion. A variety of scales are covered, from molecular to ecosystem and local to global.	Although global climate change has direct connections to biodiversity, those aren't highlighted here.
Emphasis on Skills Building	Questions encourage critical and creative thinking. Good focus on bias in media and on skills used in analyzing data.	Primarily readings, questions, and analysis of issue; limited active learning. Independent, student-directed format may hinder skill development for some students.
Action	Connections made between issues and the need for solutions. Summaries are given of individual, community, business, and government actions that can occur. Includes a section on taking action. Focuses on responsibility and need for global cooperation.	Action skills are not addressed with the same thoroughness as analytic skills. Some suggestions for action are controversial or strongly worded and could be more open to creative student initiative.
Instructional Soundness	Questions are thoughtful and self paced.	Materials are designed for student use; however, without a teacher or group facilitator, the students may not accomplish the stated goals of the materials. More role playing and simulations could be integrated throughout.
Usability	Clear and logical format. Clear language and nice tone. Addresses students in a concise, direct way.	Limited value for students who need more guidance and teacher support.

"I'd recommend these as a resource that a creative teacher could use or adapt."

"These materials are a valuable reference for students, but they may be best presented as part of a more activity-oriented curriculum on these issues."

Windows on the Wild: "The Biodiversity Collection"

MUD, MUCK, AND OTHER WONDERFUL THING

GRADE LEVELS: K-3

Mary Kroll, Writer
Publisher: National 4-H Council
7100 Connecticut Ave.
Chevy Chase, MD 20815
(301) 961-2934
email: 4hsupply@fourthcouncil.edu
web: http://www.fourthcouncil.edu

$6.00 + s&h • ©1995 • 72 pages

SUBJECTS

Science
and
Environmental Stewardship

IN A NUTSHELL

Mud, Muck, and Other Wonderful Things is designed to help children understand basic ecological concepts. Children are encouraged to observe, hypothesize, and share their findings. They are also provided with an understanding of the effect their actions have on a habitat and the responsibilities that make up good stewardship. The curriculum is arranged into seven chapters that generally build on knowledge from chapter to chapter. Chapters include background information and activities that are a mix of games, scientific experiments, and opportunities for creative expression. A text box for each activity states specific life skills emphasized, group size, materials needed, location, duration, and other important information. Each activity concludes with a section that focuses on what it means to be a steward of the environment with ideas for group projects and extensions. Chapters include In My World; It's Alive! Or Is It?; Habitat Is a Place to Hang Your Home; We All Need Each Other; Cycles and Flows; Blowing in the Wind; and Can It Grow Again? A glossary is included.

THE BOTTOM LINE

"Good focus on children's relationship to living and nonliving surroundings on a personal level."

WHAT THE REVIEWERS SAID...

NAAEE GUIDELINES	STRENGTHS	THINGS TO CONSIDER
Fairness and Accuracy	Factual content is accurate and relevant to developmental level. Learners are encouraged to explore and draw conclusions.	No references or bibliography included.
Depth	Conceptual framework included. Activities follow logical progression of skill and knowledge development. Appropriate for age group.	Some concepts could use more background for educators.
Emphasis on Skills Building	Promotes thinking skills and problem solving. Good emphasis on development of life skills.	Could use more direction and support to help educators facilitate skill development.
Action	Good focus on action. Numerous action activities provided. Focus on stewardship helps children understand what they can do.	Limited support for educators in facilitating action.
Instructional Soundness	Hands-on activities. Supports different learning styles. Incorporates a variety of teaching techniques and makes use of a variety of learning environments. Activities can be easily adapted to meet specific needs.	
Usability	Good layout. Easy to use. Objectives are clearly stated. Activities are appealing. Materials needed are inexpensive and easy to acquire.	Could use more background for educators.

"Covers the concepts of environmental science in an age-appropriate way with activities that will hold the students' attention, as well as yield lasting information and understanding."

"This is a nice collection of introductory outdoor discovery activities for young children."

Windows on the Wild: "The Biodiversity Collection"

OCEAN NEWS

Newsletter Issues 1-4 and Teacher's Guide
Newsletter Issue 5: Marine Biodiversity and Teacher's Guide
Ocean Explorer Disks and User Guide

GRADE LEVELS: 7-10

Publisher: Bamfield Marine Station
Bamfield, BC V0R 1B0 Canada
(250) 728-3301 fax: (250) 728-3452
email: cpakula@bms.bc.ca

Issues 1-4, Issue 5 + Teacher's Guide • 164 pages

©1996 • Teacher's Guide • 23 pages

30 Issues each of 1-4, Teacher's Guide + computer discs and user guide, $73.00 Canadian + s&h

30 copies of Issue 5, + Teacher's Guide + computer discs and user guide, $33.00 Canadian + s&h

SUBJECTS

General Science,
Physics, Biology,
Chemistry, and
Earth Science

IN A NUTSHELL

Each theme issue of *Ocean News* is an integrated package consisting of three parts: a newsletter directed to readers from seventh graders to adults, a teacher's guide, and computer disks. Articles and activities in the newsletter provide background concepts in marine science and insights into current research on the theme topic. The teacher's guide provides a number of learning activities designed to teach basic concepts in an engaging, hands-on way. Activities in the teacher's guide extend the concepts of the newsletter and make them concrete. The computer disks contain stand-alone computer programs for the Macintosh computer designed to complement and enhance the newsletter and teacher's guide activities. Five issues are covered: Exploring the Fluid Frontier, Marine Mammals, Seabirds, Marine Pollution, and Marine Biodiversity. The teacher's guides contain background information on general topics covered within each theme and activities. Each activity includes main ideas, objectives, background to prepare the students, materials, procedures, discussion questions, and extension ideas. Activities combine both individual and group cooperative work. A list of additional resources is given for each topic.

THE BOTTOM LINE

73

"Excellent package for general environmental and marine biodiversity education."

WHAT THE REVIEWERS SAID...

NAAEE GUIDELINES	STRENGTHS	THINGS TO CONSIDER
Fairness and Accuracy	Extremely fair and accurate. Hard science with little controversial material. Does not promote a particular viewpoint. Students are encouraged to explore different perspectives.	Information is not referenced.
Depth	Concepts are clearly explained. Environmental science is placed in the context of human activities and choices, and taught with social and economic aspects. Expands to global issues and topics.	
Emphasis on Skills Building	Encourages creative and critical thinking. Multiple levels of learning skills, from classifying, comparing, and analyzing to inferring and reflecting. Activities build to action skills.	
Action	Good emphasis on action. Encourages sense of personal stake and responsibility. Newsletters contain action ideas and examples of people who are taking action on particular issues. The teacher's guides support development of action skills and projects.	
Instructional Soundness	Learner-centered constructivist approach. Hands-on activities with opportunities to explore by doing. Encompasses a variety of learning modes. Good mix of field studies, classroom activities, and home and community activities.	No assessment suggestions given.
Usability	Very well written. Interesting, concise, and easy to use. Good mix of newsletters, disks, and activities. Comprehensive reference list given.	Some activities are specific to coastal Canada, but most are adaptable. Computer disks available only in Mac format.

"Well-defined, hands-on experiments, research, and explorations lead students to develop their own conclusions and compare with other students."

OUR OCEANS, OURSELVES:
MARINE BIODIVERSITY FOR EDUCATORS

GRADE LEVELS: EDUCATORS AT ALL LEVELS

Nancy Baron and Adrienne Mason, Writers
Publisher: Environment Canada
351 St. Joseph Blvd., 5th Floor
Hull, QC K1A 0H3 Canada
(819) 953-4374
email: bio@ec.gc.ca

FREE • ©1995 • 29 pages

SUBJECTS

General Science
and
Marine Biology

IN A NUTSHELL

Our Oceans, Ourselves provides a marine biodiversity framework for educators. The primary educational goal of the framework is to demonstrate that no matter where you live, marine biodiversity is relevant and connected to your life. The framework provides a resource (a template) to enable educators to include marine biodiversity education in their respective programs. The framework consists of background information on marine biodiversity and a sample of activities for use with students. Topics address the following questions. What is marine biodiversity? Why does it matter to you? What are the issues? What can we do? What is the Convention on Biological Diversity and the Canadian Biodiversity Strategy? The activities provide an opportunity for educators and students to experience how marine biodiversity is connected to their lives. Activities include goals, materials, instructions, discussion questions, and extensions. A glossary and list of resources is provided.

THE BOTTOM LINE

"If educators use this material, a first step or link will be made, and a spark of interest will be ignited."

WHAT THE REVIEWERS SAID...

NAAEE GUIDELINES	STRENGTHS	THINGS TO CONSIDER
Fairness and Accuracy	Accurate. Language is straightforward and nonalarmist. Impressive list of advisors.	Does not present a diversity of viewpoints on issues. Doesn't represent the views of the harvesters, anglers, and aquaculture industry. Socioeconomic context is not emphasized.
Depth	Introductory materials for educators cover concepts and issues but are very brief. Explains links between coastal and inland habitats, local and global fisheries, and other marine activities.	Limited depth, more of a framework (which is the purpose of the material).
Emphasis on Skills Building	Activities emphasize observing and recording with some book-based research. One activity encourages exchange of information with another school. Used with other materials, concepts could promote critical and creative thinking skills.	Does not encourage inquiry. Emphasis is more on facts. Needs additional materials to fully develop understanding of concepts and issues. (Material is a framework.)
Action		Not the focus of this material.
Instructional Soundness	Hands-on and learner-centered activities. Relates marine biodiversity to students' everyday lives (purpose of activities). Varied in modes of learning and acquiring information. Mix of learning environments: school, home, store, and outdoors.	No assessment ideas are given.
Usability	Background, goals, and purpose are clear. Activities can easily be adapted to a variety of situations and needs. Spiral-bound booklet is easy to photocopy.	Prior knowledge or additional resources needed by educator.

"A simple, clear, unintimidating introduction to marine biodiversity. Students will, without much time, trouble, or required materials, see how they are linked to the oceans."

"Provides an excellent framework on marine biodiversity."

OUR ONLY EARTH SERIES:
A CURRICULUM FOR GLOBAL PROBLEM SOLVING

Endangered Species: Their Struggle to Survive
Our Divided World: Poverty, Hunger & Overpopulation

GRADE LEVELS: 4-12

Micki McKisson and Linda MacRae-Campbell, Writers
Publisher: Zephyr Press
P.O. Box 66006
Tucson, AZ 85728-6006
(520) 322-5090

$22.00 + s&h • ©1990 • 102 pages per book

SUBJECTS

Science,
Social Studies,
and
Language Arts

IN A NUTSHELL

These are two units from *Our Only Earth*, a seven-unit series. The intent of the series is to provide students with the knowledge and skills to actively address major global issues. The program provides information aimed at strengthening students' skills and enabling them to contribute positively to their world. In each unit, students get an overview of the issue, write letters and research the issue, participate in a variety of individual and group activities, evaluate the issue from various viewpoints, and participate in a summit–a group activity to create and implement an action plan. *Endangered Species: Their Struggle to Survive* focuses on the issues of habitat destruction, overhunting, pollution, and introduced species. Attention is given to the role of humans and the decisions and choices that can be made by individuals and groups. *Our Divided World: Poverty, Hunger & Overpopulation* focuses on the similarities and contrasts between industrialized and less-industrialized countries. Issues such as food, housing, employment, and crime are addressed. This unit helps students understand that solving the problems associated with inequitable resource distribution requires global cooperation and takes group and individual effort. Each unit contains a glossary and an extensive resources section.

77

THE BOTTOM LINE

"This material is exemplary in relying on self-directed learning and inquiry. Materials also empower students to address environmental issues and gain real world skills."

WHAT THE REVIEWERS SAID...

NAAEE GUIDELINES	STRENGTHS	THINGS TO CONSIDER
Fairness and Accuracy	Inquiry is the basis for this program. Use of a variety of primary sources is encouraged.	
Depth	Quantity and quality of research is dependent on students, but tips are given to the teacher to help encourage thorough research and holistic discussions.	Depth of understanding may vary and depends on both teacher direction and student participation.
Emphasis on Skills Building	Carefully structured lessons encourage skills building. Focuses on reading, researching, thinking, analyzing, solving problems, and learning action skills.	
Action	Strong emphasis on action. Process leads to action, both individual and group.	
Instructional Soundness	Learner centered. Students internalize concepts and skills. Encourages cooperative learning. Interdisciplinary. Critical thinking skills incorporated throughout.	Activities are primarily research based. Objectives for learner outcomes not clearly stated. Limited evaluation component.
Usability	Clear, well-planned, sequential layout of activities. Activities were field tested. Focuses on timely issues that are important to students. Permission given to duplicate.	Not particularly teacher friendly. Background information for teacher is inadequate. Must do all activities to accomplish objectives.

"Not a glitzy package, but a well-planned set of activities imparting data collecting, content, and thinking and action skills."

"Good cooperative learning activities."

POPULATION REFERENCE BUREAU, INC.

Making Connections: Linking Population and the Environmer
Adventures on Earth: Exploring Our Global Links
Connections: Linking Population and the Environment

GRADE LEVELS: K-12

Publisher: Population Reference Bureau, Inc.
1875 Connecticut Ave. NW, Suite 520
Washington, DC 20009-5728
(202) 483-1100 or (800) 877-9881
email: popref@prb.org • web: http://www.prb.org

Making Connections
$15.00 + s&h • ©1992 • 143 pages • Grades K-6

Adventures on Earth
$10.00 + s&h • ©1997 • 51 pages • Grades 6-12

Connections
$13.00 + s&h • ©1991 • 96 pages • Grades 7-12

SUBJECTS

Science,
Social Studies,
Geography,
and
Economics

IN A NUTSHELL

Making Connections provides elementary teachers with materials and strategies to teach about population and environmental issues. The materials provide content in basic population dynamics and specific issues such as water use, deforestation, desertification, and urban problems. Materials are also designed to help students begin to understand the complexity of these issues, the relationship between population growth and environmental degradation, and the interdependence of the world's nations and people. The guide contains 28 lessons, reproducible student handouts, resource materials, and data tables. *Adventures on Earth* focuses on the understanding that all systems, including human systems, are connected and that just as we all depend on the environment to meet our basic needs, so do we all share responsibility for the health of the environment. This classroom guide uses a series of interactive lessons to provide students with the foundation to realistically address these complex issues. It helps students consider how people use the environment; the factors (demographic, socioeconomic, political, and cultural) that affect human use of resources; and the local and global environmental impact of people's actions and choices. The unit includes four core lessons and two case studies. *Connections* is designed to help teachers and students better understand the links between population, environment, and sustainable development. The student book contains a series of articles, many of which appeared as part of the Population Reference Bureau's Global Education Project in newspapers in less-industrialized countries. The teacher's guide contains 27 lessons that complement the articles and expand on selected concepts.

73

THE BOTTOM LINE

"Good use of factual data and articles."

WHAT THE REVIEWERS SAID...

NAAEE GUIDELINES	STRENGTHS	THINGS TO CONSIDER
Fairness and Accuracy	Factual information is cited. Students are asked to think, analyze, ask questions, and explore issues.	May contain too much "gloom and doom," particularly for younger students. Some bias in emphasizing only the negative impact of developing countries and not the contributions (medicines, technology, etc.).
Depth	Good focus on linkages among the environment, population, and how people live and use resources. Focuses on historical, ethical, geographic, economic, and sociopolitical relationships. Global connections are emphasized.	Could use more background information for teachers. No real emphasis on environmental concepts from a science viewpoint.
Emphasis on Skills Building	Focuses on collecting and organizing information, analyzing data, and using graphs and charts. Encourages students to think critically and form their own opinions.	Limited focus on developing skills needed to help students take action.
Action	Students develop an understanding of the importance of the issues.	No real action orientation. "Gloom and doom" tone may make students feel that there is little that can be done.
Instructional Soundness	If activities are used sequentially, learners build on prior knowledge. Reviewed and tested by teachers. Good focus on concepts.	Limited hands-on activities. Primarily classroom based, emphasizing reading, discussion, and worksheets. Some readings and content may be heavy for younger students.
Usability	Clarity of purpose. Clear instructions and references to goals, grade levels, standards, and skills.	

"I would recommend this–with some reservations. These are critical global issues, generally glossed over in most curriculums, but the overwhelming despair may put off some teachers."

"Good activities on important topics. Good links between people and the environment."

PROJECT LEARNING TREE

Pre K-8 Activity Guide
Secondary Modules:
Introductory Handbook for the Secondary Modules
Exploring Environmental Issues: Focus on Forests
The Changing Forest: Forest Ecology
Exploring Environmental Issues: Municipal Solid Was

GRADE LEVELS: PreK-12

Publisher: American Forest Foundation
1111 19th St. NW, Suite 780
Washington, DC 20036
(202) 463-2462
web: http://www.plt.org

FREE • Workshop Attendance Required

©1993 • PreK-8 Activity Guide • 402 pages

©1995 • Introductory Handbook • 78 pages

©1995 • Focus on Forests • 72 pages

©1996 • Forest Ecology • 136 pages

©1997 • Municipal Solid Waste • 136 pages

SUBJECTS

Science,
Language Arts,
Social Studies, Art,
Music, and
Physical Education

IN A NUTSHELL

Project Learning Tree (PLT) is an interdisciplinary, comprehensive environmental education program that uses the forest as a window into the natural world. The *PreK-8 Activity Guide* is arranged into five major themes: Diversity, Interrelationships, Systems, Structure and Scale, and Patterns of Change. Each theme covers the areas of Environment, Resource Management & Technology, and Society & Culture and is based on the PLT Conceptual Framework. PLT activities include an overview; a sidebar with grade levels, subjects, concepts, skills, objectives, materials, time required, references, and related activities; background information; preparation needed; procedures for the activity; variations; enrichment; and assessment opportunities. PLT's secondary program includes a series of learning modules that deal with current environmental topics and issues. Each module is organized into three sections: background information, students activities, and appendices. Activities are similar in format to those in the PreK-8 guide. PLT materials are designed to be flexible, and activities can be used individually or as part of a conceptual storyline. Topics for secondary modules include forest issues, forest ecology, solid waste, risk assessment, the built environment, and biodiversity. All materials contain the PLT Conceptual Framework, glossary, bibliography, and a variety of appendices. This program also includes an extensive workshop component, with hundreds of workshops conducted annually across the country.

THE BOTTOM LINE

"One of the greatest strengths I saw in these materials was its encouragement of students to explore and pursue in an effort to form their own opinions."

WHAT THE REVIEWERS SAID...

NAAEE GUIDELINES	STRENGTHS	THINGS TO CONSIDER
Fairness and Accuracy	Very fair and accurate. Presents a balance of different viewpoints. Encourages students to explore and develop their own opinions and values.	Some activities could use more background information.
Depth	Wide variety of concepts presented in various contexts and settings. Attention paid to historic, cultural, and legal histories. Variety of scales are presented, from local to global aspects of environmental education.	Instructor may have to extrapolate beyond the given material to adequately teach some of the concepts.
Emphasis on Skills Building	Focuses on critical thinking skills. Students move through the stages of awareness, knowledge, challenge or consensus, and action.	
Action	Great amount of encouragement to take action, especially in secondary guides. Activities promote a sense of personal stake in the environment and the effects of action.	
Instructional Soundness	Learner centered. Interdisciplinary. Goals and objectives are clearly stated. Uses constructivist approach. Provides for diversity of learning styles. Includes options for assessment. Mix of learning environments. Extensive evaluation conducted.	
Usability	Layout and format are excellent and easy to use. Objectives and concepts covered are easy to identify. Reproducible pages are included. Materials needed for activities are simple and inexpensive. Lots of resources are given.	Need to attend workshop to receive guides.

"I am impressed with the organization and usability of PLT materials and the openness with which the issues are presented."

"A wide array of activities–something for everyone!"

PROJECT WET:
CURRICULUM AND ACTIVITY GUIDE

GRADE LEVELS: K-12

Publisher: The Watercourse and Council for Environmental Education

Project WET
201 Culbertson Hall
Montana State University
Bozeman, MT 59717-0057
(406) 994-5392 fax: (406) 994-1919
email: rwwmb@gemini.oscs.montana.edu
web: http://www.montana.edu/wwwwater

FREE • Workshop Attendance Required

©1995 • 516 pages

SUBJECTS

Primarily Science,
with linkages to other curriculum areas

IN A NUTSHELL

The *Project WET Curriculum and Activity Guide* is a collection of water-related, hands-on activities that are easy to use. People's relationship to water is a major theme of this water education program. The guide also addresses water's chemical and physical properties, quantity and quality issues, aquatic wildlife, ecosystems, and management strategies. Project WET activities promote critical thinking and problem-solving skills and help provide students with the knowledge and experience they will need to make prudent decisions regarding water resource use. Educators may organize activities into units of study or pick and choose individual activities. Most activities require little preparation and can be conducted within one class period. However, other activities include a variety of approaches to learning water-related concepts, which involve more preparation and class time. Each activity provides information for the educator including grade level, subject areas, duration, setting, skills, concepts, vocabulary, objectives, materials, background, procedures, extensions, assessment, and resources. The guide also contains numerous appendices, including a curriculum framework, cross-reference and planning charts, a glossary, and supplementary resources.

THE BOTTOM LINE

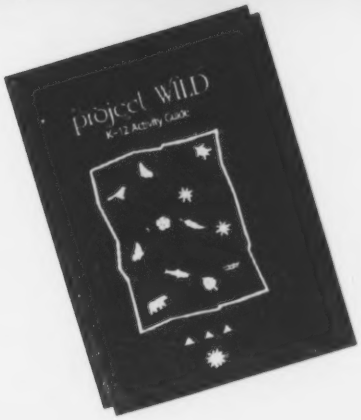
"One of the best resources I have seen."

WHAT THE REVIEWERS SAID...

NAAEE GUIDELINES	STRENGTHS	THINGS TO CONSIDER
Fairness and Accuracy	Scientifically accurate and fair. Well researched and reviewed. Good balance in presentation of information.	
Depth	Background information is very thorough. Concepts cross over a variety of topics. Extensions involve understanding of various scales, from local to global. Carries through from awareness and appreciation to issues and action. Ethnic and cultural diversity represented.	
Emphasis on Skills Building	Extensive hands-on approach. Focuses on information gathering, organization, analysis, interpretation, application, evaluation, and presentation. Many activities integrate many skills. Skills chart is included as an appendix.	
Action	Includes issues investigations and action at various levels. Relevant to students' lives. Includes examples of individual and group activities.	Could use more suggestions for action, particularly at the lower grade levels.
Instructional Soundness	Objectives are well thought out and stated clearly. Grade levels for each activity are indicated. Provides for a variety of learning styles and for both individual and group learning. Interdisciplinary. Assessment suggestions are given.	Limited use of diverse learning environments, with many classroom-based activities.
Usability	Format is easy to use and consistent. Activities are adaptable for individual needs. Excellent appendices.	Need to attend workshop to receive guides.

"Project WET has taken the strengths and weaknesses of several other nationally developed curriculum supplements and has put together an exciting set of materials."

"Absolutely an excellent resource book for all teachers of science."



PROJECT WILD

Project WILD K-12 Activity Guide
Project WILD Aquatic Education Activity Guide

GRADE LEVELS: K-12

Publisher: Council for Environmental Education
Project WILD
5430 Grosvenor Ln.
Bethesda, MD 20814
(301) 493-5447 fax: (301) 493-5627
email: natpwild@igc.apc.org
web: http://eelink.umich.edu/wild/

FREE • Workshop Attendance Required • ©1992

K-12 Guide, 386 pages • Aquatic Guide, 242 pages

IN A NUTSHELL

The *Project WILD K-12 Activity Guide* focuses on wildlife and habitat. The *Project WILD Aquatic Education Activity Guide* emphasizes aquatic wildlife and aquatic ecosystems. Each is divided thematically into seven sections: Awareness and Appreciation; Diversity of Wildlife Values; Ecological Principles; Management and Conservation; People, Culture, and Wildlife; Trends, Issues, and Consequences; and Responsible Human Actions. Activities are based on the Project WILD Conceptual Framework. Each activity includes objectives, method, background information, a list of materials needed, procedures, evaluation suggestions, recommended grade levels, subjects, skills, duration, group size, setting, and key vocabulary. Each activity is designed to stand alone. Project WILD may be integrated into existing courses of study, or the entire set of activities may serve as a basis for a course of study. A glossary is provided, as well as cross-references by topics, school subjects, grade levels, and skills.

SUBJECTS

Science,
Social Studies,
Language Arts,
Math, and Art

THE BOTTOM LINE

85

"I'm sure kids have fun doing these activities."

WHAT THE REVIEWERS SAID...

NAAEE GUIDELINES	STRENGTHS	THINGS TO CONSIDER
Fairness and Accuracy	Material is usually presented in an unbiased way. Action component allows for different opinions. Thoroughly field tested and reviewed.	
Depth	Covers a lot of ground with regard to environmental and ecological concepts and issues. Concepts are relevant.	Not a lot of emphasis on human considerations. Scale is limited. "Big" questions–lifestyle, energy consumption, food supply, and relationship to wildlife issues–are not addressed in a significant way.
Emphasis on Skills Building	Interdisciplinary. Connections made to skills from a variety of subject areas. Some activities encourage critical and creative thinking. Activities for older students use higher level skills.	Teachers could use more assistance to help students make discoveries and draw their own conclusions.
Action	Includes activities on personal responsibility. Encourages students to think about stewardship and personal ethics.	
Instructional Soundness	Variety of activities cater to different learning styles. Good interdisciplinary connections. Good hands-on, physically active activities. Assessments included with each activity.	In some cases, activities assume students have knowledge that is not given until the end of the activity.
Usability	Clear, consistent design. Good cross-references. Fits many national standards. Has a conceptual framework.	Writing style could be livelier and more engaging. Need to attend workshop to receive guides.

"Project WILD is a good supplement for a curriculum in environmental education. Activities are easy to use and adapt to a variety of situations."

"Section 7 has more of the meaty activities I'd be inclined to use."

Windows on the Wild: "The Biodiversity Collection"

RANGER RICK'S NATURESCOPE SERIES

Amazing Mammals, Part II
Birds, Birds, Birds!
Endangered Species: Wild & Rare
Let's Hear It for Herps!
Rain Forests: Tropical Treasures

GRADE LEVELS: K-8

Judy Braus, Editor
National Wildlife Federation
Publisher: McGraw-Hill, Inc.
11 West 19th St.
New York, NY 10011-4285
(800) 722-4726

$12.95 each + s&h • 88-102 pages

©1989 • Amazing Mammals, Part II

©1992 • Birds, Birds, Birds!

©1989 • Endangered Species: Wild & Rare

©1987 • Let's Hear It For Herps!

©1989 • Rain Forests: Tropical Treasures

SUBJECTS

Interdisciplinary,
tying science and the environment to social studies, language arts, and other subject areas

IN A NUTSHELL

The *NatureScope* activity series is designed to help educators incorporate science and environmental education into their teaching. Each issue focuses on a particular topic and provides background information, hands-on activities, ready-to-copy activity sheets, a glossary, and a bibliography. Most issues also include a craft section with art and craft ideas relating to the topic. The guides provide educators with a comprehensive, flexible teaching kit. The background information explains environmental concepts and issues. The activities help students understand important concepts, while engaging them in active learning that encourages creativity, curiosity, and cooperative learning. Each activity also stands on its own and can be used independently or as part of a larger unit. The program stresses knowledge of science, the environment, geography, and other subject areas; skills such as problem solving, analyzing, and creative writing; and development of an environmental ethic, emphasizing awareness and attitudes as well as specific ways to take action on behalf of the environment.

*Materials from indicated copyrights were reviewed. Some activity guides have been updated. Price and page numbers reflect updated guides.

THE BOTTOM LINE

87 **"Information and background are well researched, and activities should hold students' interest."**

WHAT THE REVIEWERS SAID...

NAAEE GUIDELINES	STRENGTHS	THINGS TO CONSIDER
Fairness and Accuracy	Factually oriented. Presents diverse viewpoints. Approaches problems from various angles (economic, social, human needs, etc.).	Relies on the teacher's ability to present information.
Depth	Very thorough. Presents concepts from several angles and through a variety of activities.	
Emphasis on Skills Building	Students gain knowledge through problem solving and creative and critical thinking. Puts issues into human context and explores cause-effect relationships. Interdisciplinary activities develop skills across the curriculum.	
Action	Makes connections to personal responsibility and choices related to actions.	Most actions are geared for individuals. Could have more support for broader environmental projects and campaigns.
Instructional Soundness	Good variety of approaches that address different learning styles. Material is age appropriate. Good mix of activities. Interdisciplinary.	Many activities do not extend beyond the classroom or instructional setting.
Usability	Easy to use. Objectives are clear. Background information for teachers is thorough and sufficient. Good bibliography and support materials.	

"Even if a teacher is not creative, these activities can generate a creative, fun, and interesting classroom experience for the kids (and teacher)."

"These books provide enough depth and specifics to impress the average adult!"

Windows on the Wild: "The Biodiversity Collection"

RELATIONSHIPS OF LIVING THINGS

MACMILLAN/MCGRAW-HILL SCIENCE: UNIT 14

GRADE LEVEL: 3

Publisher: Macmillan/McGraw-Hill School Division
220 E. Danieldale Rd.
De Soto, TX 75115
(800) 442-9685 fax: (972) 224-5444

©1995 • 70 pages

Teacher's Planning Guide,
$34.98 for Schools, $93.28 for Individuals + s&h

Teacher's Resource Book, $9.00 + s&h

SUBJECTS

Science
with suggestions for integrating with other curriculum areas

IN A NUTSHELL

Relationships of Living Things is one of five units for third grade in the Macmillan/McGraw-Hill Science series. This activity-based series uses a four-step lesson cycle (engage, explore, develop, extend/apply), which is built from a constructivist point of view. The focus of *Relationships of Living Things* is the interaction of living things in an ecosystem. Students are encouraged to explore major environmental issues through hands-on activities, critical thinking, problem solving, and decision making as they begin to construct their own understandings of the concept. Themes addressed in *Relationships of Living Things* include systems and interactions, energy, and patterns of change. Topics include living together, getting food, staying in balance, examining Earth's cycles, and learning what students can do.

The Teacher's Planning Guide includes strategies for assessing prior knowledge; theme, technology, and curricular connections; discussion strategies; extension activities; assessment options and tests; project ideas; and resources.

The Teacher's Resource Book that accompanies the series includes resource masters, an assessment guide, and a program index.

THE BOTTOM LINE

"Good solid program for third grade."

WHAT THE REVIEWERS SAID...

NAAEE GUIDELINES	STRENGTHS	THINGS TO CONSIDER
Fairness and Accuracy	Accurate. Covers pros and cons of issues.	
Depth	Presents various aspects of issues.	Could use more background information for the teacher.
Emphasis on Skills Building	Incorporates critical and creative thinking, as well as exploration and application of new knowledge.	
Action	Some action is covered, particularly in surveying the students' own community.	Could use more activities and examples of student involvement in issues.
Instructional Soundness	Good hands-on activities. Interdisciplinary connections are made. Good assessment tools.	Could foster more student curiosity and investigation. Strong emphasis on student worksheets.
Usability	Very usable, clear, and logical. Provides links to other support materials. Includes evaluation and student worksheets.	More background material for the teacher could make it easier to use.

"I liked the integrative approach of people and biodiversity and of exploration and action."

SCIENCE—TECHNOLOGY—SOCIETY:

PREPARING FOR TOMORROW'S WORLD, DECISIONS FOR TODAY AND TOMORROW

GRADE LEVELS: JUNIOR AND SENIOR HIGH SCHOOL AND HIGHER LEARNING INSTITUTIONS

Louis A. Iozzi and Peter J. Bastardo, Writers
Publisher: Sopris West, Inc.
1140 Boston Ave.
Longmont, CO 80501
(800) 547-6747
web: http://www.sopriswest.com

$60.00 • ©1987 • Binder contains 3 sections, 12 units

SUBJECTS

Science
and
Social Studies

IN A NUTSHELL

The purpose of this program is to help students develop mature mental structures, higher-order thinking skills, and knowledge of present and emerging issues in science, technology, and society. The program includes readings to develop an information base and, to some extent, reasoning and thinking skills. The activities help students to think and reason and use the knowledge acquired in meaningful situations. By looking at real case studies, students actively participate in the exploration of various concepts. Activities begin at a concrete level and move into greater depths that emphasize more sophisticated formal concepts. Activities include readings, classroom discussion and questioning, writing, scenario/dilemma discussions, and debates. Topics covered in *Science–Technology–Society: Preparing for Tomorrow's World, Decisions for Today and Tomorrow*, with several activities in each unit, include the following: What is Technology?, Decision Making in a High-Tech World, Genetic Engineering, Artificial Intelligence, Nuclear Energy, Acid Precipitation, Hazardous Wastes, Food and Agriculture, Organ Transplants, Transportation, Robotics, and Technology and Decision Making.

91

THE BOTTOM LINE

"Good for upper-level educators who want to focus on these topics."

WHAT THE REVIEWERS SAID...

NAAEE GUIDELINES	STRENGTHS	THINGS TO CONSIDER
Fairness and Accuracy	Abundance of well-referenced, factual information. Issues are presented with varying viewpoints, and students are encouraged to think and make their own decisions.	Developed in 1987; might need a revision for some units.
Depth	Excellent background, and in-depth coverage of topics. A wealth of resources is offered. Excellent resource for in-depth science and social studies courses.	Some educators might need training to use the problem-solving models and thinking processes most effectively.
Emphasis on Skills Building	Builds on skills from a variety of disciplines. Focuses on conceptualizing, critical thinking, analysis, problem solving, synthesis, and decision making.	
Action	Students are encouraged to examine issues and consequences from a variety of perspectives and consider their role in society. Students reflect on their own value systems and make decisions about their own ideas and choices.	While the need for action is implied, activities do not include an implementation component.
Instructional Soundness	Builds skills and concepts from simple to complex. Variety of teaching modalities. Considers various learning styles.	
Usability	Content and methodology is valuable. May be best for a high school or university program.	Layout may be confusing to some educators.

"This resource contains a lot of useful information. The activities are structured so students are encouraged to think."

TEACHER'S GUIDE TO WORLD RESOURCES: BIODIVERSITY

GRADE LEVEL: SECONDARY

Publisher: World Resources Institute Publications
P.O. Box 4852 Hampden Station
Baltimore, MD 21211
(800) 822-0504 or (202) 662-2596
web: http://www.wri.org/wri/enved

$6.95 + s&h • ©1994 • 23 pages

IN A NUTSHELL

Information and analysis used in the *Teacher's Guide to World Resources: Biodiversity* are drawn from World Resources Institute publications and databases. The intent is to provide easy-to-use, inexpensive classroom materials that contain the most recent and authoritative information on the global environment. The guide contains enough teaching suggestions and presentation materials to teach one to several classes on the topic. The guide also points teachers and students to additional resources and offers suggestions for expanded coursework. Objectives focus on the definition of biodiversity and examples of genetic, species, and ecosystem diversity; ways biodiversity is threatened; symptoms and root causes of biodiversity loss; the value of biodiversity; local, national, and international strategies for preserving biodiversity; and actions that can be taken to help preserve biodiversity.
The guide provides objectives, a lesson plan, student handouts, overhead transparency masters, student enrichment activities, suggestions for further reading, and suggested audiovisual resources. The guide provides a comprehensive, consistent, and flexible set of materials for environmental studies courses. The materials can be used in conjunction with an environmental science textbook to give students an understanding of basic environmental systems and cycles. They can also be used in a social studies context to examine some of the tough problems and choices we face as a society.

SUBJECTS

General Science,
Environmental Science,
and
Social Studies

THE BOTTOM LINE

"Primarily provides information and a guide to additional resources. As a stand-alone education program, it is lacking in focus on educational theory and development of skills. However, it provides an excellent outline and connections to resources that are accurate and research based."

WHAT THE REVIEWERS SAID...

NAAEE GUIDELINES	STRENGTHS	THINGS TO CONSIDER
Fairness and Accuracy	Accurate. Makes connections to research and current analysis.	Limited presentation of alternate viewpoints. Weak in presentation of human and cultural issues.
Depth	Comprehensive and logical outline. Focuses on policy and global scale.	Limited in scope. Material does not capture complexity or context of issues. Use of additional resources is needed. Scale is primarily global, with a focus on policy.
Emphasis on Skills Building	Some activities emphasize critical thinking. Provides an understanding of the need for action.	Limited focus on skill development. Does not emphasize creative thinking.
Action	Includes several action-oriented activities such as creating a butterfly garden and adopting an endangered animal.	Teacher directed. Does not encourage students to explore needs in their own community or generate their own ideas.
Instructional Soundness	Lists clear objectives. Outline format gives teachers an overview of the topic. Flexible.	Limited emphasis on varied learning styles. Few connections to daily life.
Usability	Well written and intelligent in style. Concise. Supports integration into a full curriculum. Presents ties to national standards. Lots of additional resources are listed.	Focuses on readings, handouts, and overheads. Format could be more creative and appealing.

"Overview of biodiversity is well laid out."

THREATENED AND ENDANGERED ANIMALS:

AN EXTENDED CASE STUDY FOR THE INVESTIGATION AND EVALUATION OF ISSUES SURROUNDING THREATENED AND ENDANGERED ANIMALS OF THE UNITED STATES

GRADE LEVELS: 8-12

David Hagengruber and Harold Hungerford, Writers
Publisher: Stipes Publishing L.L.C.
10 Chester St.
Champaign, IL 61820
(217) 356-8391 fax: (217) 356-5753
email: stipes@soltec.com

©1993

$20.80 + s&h Teacher's Guide, • 189 pages

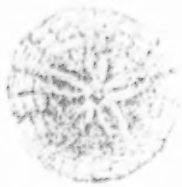
$9.80 + s&h Student's Guide, • 130 pages

IN A NUTSHELL

This resource focuses on issues surrounding threatened and endangered species in the United States and promotes the development of environmental action skills. The first two chapters introduce concepts, definitions, and content related to endangered species. The third and fourth chapters explore issues and values and apply issues analysis skills, including writing research questions, using a survey instrument, developing a data collection strategy, and interpreting the findings. The final chapter teaches students how to design and implement an action plan related to management of endangered species.

SUBJECTS

Science,
Math,
and
Language Arts



THE BOTTOM LINE

95

"For the teacher willing to dig, this could help students analyze complex environmental issues."

WHAT THE REVIEWERS SAID...

NAAEE GUIDELINES	STRENGTHS	THINGS TO CONSIDER
Fairness and Accuracy	Rich in factual information. Balanced perspective.	Could be better referenced.
Depth	Clear conceptual framework. Great depth on endangered species, less on developing scientific concepts.	Weak design makes it hard to take full advantage of the depth of information.
Emphasis on Skills Building	Learners are encouraged to develop their own solutions to issues. Case studies model how to research issues, explore values, and take action to protect wildlife.	Good on actions skills, but less so on science process skills.
Action	A lot of attention given to the process of developing appropriate actions. Includes specific strategies and examples of action projects.	
Instructional Soundness	Concepts build upon one another. Goals clearly stated. Materials are based on real-world experiences.	Does not cater to diverse learning styles. Grade levels not specified. No assessment.
Usability	With training, could add value to a school's curriculum.	Permission to copy specifically not given. Might be hard to integrate into existing school curricula. Some reviewers felt activities were unimaginative.

"Action and analysis skills are good."

"Great information, but dry presentation."

WHAT IS IT? A GUIDE TO BIOLOGICAL IDENTIFICATION

GRADE LEVELS: ALL

Judith M. Hancock, Writer
Publisher: J. Weston Walch
321 Valley St.
P.O. Box 658
Portland, ME 04104-0658
(800) 341-6094
web: http://www.walch.com

$19.95 + s&h • ©1992 • 115 pages

IN A NUTSHELL

This reproducible sourcebook provides a hands-on introduction to students and teachers who are not well acquainted with identification. Activities teach classification, emphasize field work, and convey a sense of openness and wonder. Included are materials on classification considerations for major groups of organisms; use of field guides, with reviews of several major guides; and a listing of supplies needed for effective instruction. Part I provides the necessary background information on identification and classification, and it examines and reviews various field guides. Part II consists of eight class projects, termed "Activities and Investigations," which are arranged in order of increasing complexity. Activities are indoor projects of variable content and duration and do not include field identification. Investigations are outdoor projects involving the use of field guides. The teacher's section gives background information and provides practical suggestions for teaching and handling results. Reproducible data sheets are included.

SUBJECTS

Science

THE BOTTOM LINE

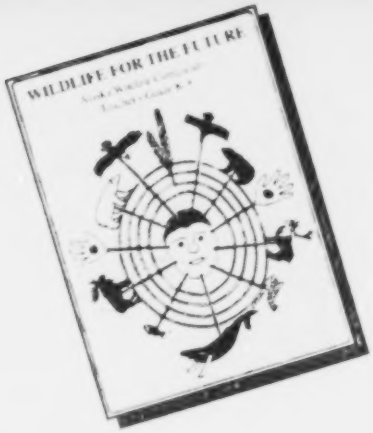
"Wow! I love this."

97 "Excellent lessons developed to teach about taxonomy."

WHAT THE REVIEWERS SAID...

NAAEE GUIDELINES	STRENGTHS	THINGS TO CONSIDER
Fairness and Accuracy	Accurate.	
Depth	Excellent teacher background information. Sequenced activities provide in-depth understanding of scientific inquiry.	Emphasis on local investigations, with no correlation to larger scales.
Emphasis on Skills Building	Well sequenced. Develops scientific inquiry skills including observation, identification, analysis, and organization of information.	
Action		Not designed for action.
Instructional Soundness	Learner centered. Activities build on prior knowledge. Provides for different learning styles. Creates enthusiasm for science process as well as content. Includes a mix of indoor and outdoor activities. Assessment ideas included.	Grade levels not listed. Does not include interdisciplinary ideas.
Usability	Clear and logically written. Good background information. Data sheets included. Suggestions for adapting to various habitats and school settings are made.	Requires purchase of field guides.

"Classification is an eye-opening, scientific basis for appreciating biodiversity. Since this curriculum emphasizes the process rather than accurate results, it's a very positive approach."

"Excellent guide for teaching classification using simple and easily obtainable organisms."

WILDLIFE FOR THE FUTURE

GRADE LEVELS: K-8

Publisher: Circumpolar Press
P.O. Box 221995
Juneau, AK 99522
(907) 248-9921
email: robind@fishgame.state.ak.us

$13.95 • ©1995 • 169 pages

SUBJECTS

Science,
Social Studies, Math,
Language Arts,
and Art

IN A NUTSHELL

Although specific to Alaska, this interdisciplinary curriculum investigates biodiversity connections within its borders and beyond. It focuses on terrestrial and aquatic biology, math, geology, language arts, journalism, and art. It examines why wildlife is important from an economic, ecological, and spiritual perspective. The first two units of this activity guide introduce habitat and patterns of change in populations. The third and fourth units, on biodiversity and endangered species, explore the interrelationships between wildlife and humans leading to the loss or preservation of biodiversity. The final unit involves students in wildlife management–the decisions and actions that will affect the future of Alaska's wildlife.

THE BOTTOM LINE

99

"Multidisciplinary–a truly all-around, excellent module."

WHAT THE REVIEWERS SAID...

NAAEE GUIDELINES	STRENGTHS	THINGS TO CONSIDER
Fairness and Accuracy	Simple but packed with content. Balanced presentation of different viewpoints.	Specific to Alaska, but many activities are transferable or can be modified.
Depth	Each unit offers a range of activities for different development levels. Great background information on marine and terrestrial, local and global, and micro and macro scales.	Heavier on science than socioeconomics.
Emphasis on Skills Building	Students learn real wildlife management skills. Provides history of problems and mistakes. Role playing attempts to help prevent history from repeating itself.	Some issues are specific to Alaska. Could focus more on creative thinking and applying skills to issues.
Action	"Can do" approach. Looks at underlying values.	Action section is all in one place rather than integrated within other activities.
Instructional Soundness	Varied approach appeals to different learning styles. Clearly stated objectives and evaluation. Good balance of indoor and outdoor activities.	
Usability	Well-written and organized material. Nice presentation. Accompanied by support data.	Design not bad, but could have more graphics and visuals.

"Superb synopsis of real wildlife issues–great details without going overboard."

"Has more balance than almost any other curriculum I've seen."

97 100

Windows on the Wild "The Biodiversity Collection"

WOW! THE WONDERS OF WETLANDS

GRADE LEVELS: K-12

Publisher: The Watercourse
201 Culbertson Hall
Montana State University
Bozeman, MT 59717-0057
(406) 994-5392 fax: (406) 994-1919
email: rwwmb@gemini.oscs.montana.edu
web: http://www.montana.edu/wwwwater

$15.95 • ©1995 • 330 pages

IN A NUTSHELL

The first part of WOW! provides background material for teachers preparing wetland study units. It is divided into the following six chapters. Wetlands and People: Through Time and Across Borders, Defining Wetlands, Wetland Functions, Wetlands as Home, and Action for Wetlands. Each chapter starts with a short list of themes and recommended activities to address those themes. Information throughout the background chapters is cross-referenced to specific activities contained in the guide.

The rest of the guide contains wetland activities separated into five groupings that focus on general wetland concepts and definitions, wetland communities of plants and animals, the role of water in wetlands, the role of soils in a wetland environment, and the interactions between humans and wetlands. Each activity provides a sidebar that contains grade level, subject areas, duration, setting, skills, concepts, and vocabulary. Activities include a summary, objectives, materials needed, connections to students' lives, background information, step-by-step procedures for the activity, assessment strategies, extension ideas, and a list of resources. The guide also includes a planning guide for suggested units of study, a chart to activities by grade level, a guide to planning and developing a schoolyard wetland habitat, a glossary, and a list of resources.

This guide is part of a collection of water-related educational resources published by The Watercourse. Project WET is also part of this collection and is referenced in *WOW! The Wonders of Wetlands*.

SUBJECTS

Science,
Political Science,
History,
and
Geography

THE BOTTOM LINE

"Would work well as a supplement to life science, earth science, and biology classes."

101

WHAT THE REVIEWERS SAID...

NAAEE GUIDELINES	STRENGTHS	THINGS TO CONSIDER
Fairness and Accuracy	Information is clear and current. Encourages data analysis and collection. Provides historical context of wetland issues.	Limited focus on differing viewpoints.
Depth	Comprehensive introduction to wetland issues and definitions. Themes extend clearly. Good transition within activities. Considers local to global scales.	Concepts are not as organized as they could be. Difficult to match to environmental education guidelines. Activities have more breadth than depth.
Emphasis on Skills Building	Focuses on problem solving, designing experiments, analyzing data, and hypothesizing. Relates new ideas to old. Inferring, relating, and applying skills appear in most activities. Includes individual and group activities.	Although there is a section on helping wetlands, materials could use more focus on applying skills to issues.
Action	Promotes self responsibility and actions individuals can take. Suggestions for helping wetland habitats are given.	Focus is on wetlands. Project WET is suggested for activities related to other water-use issues.
Instructional Soundness	Goals and objectives are clear. Research and application of skills provide for a variety of experiences and learning styles. Expands learning environment beyond classroom. Interdisciplinary. Assessment suggestions are given.	Visual diagrams could be larger and clearer. Broad age range is listed with most activities. Material seems appropriate primarily for middle school.
Usability	Text is clear and well organized. Excellent background materials for teachers. Good equipment and resource lists. Activities can stand alone.	Book format and thickness makes photocopying of student pages somewhat difficult.

"Overall, good activities that cover a wide range of related topics."

"Good in-depth background information for teachers, although a lot of time is required to read and organize an education program using this guide."

Windows on the Wild, "The Biodiversity Collection"

GRADE LEVELS: 1-12

Publisher: Zero Population Growth
1400 16th St. NW, Suite 320
Washington, DC 20036
(202) 332-2200 or (800) 767-1956
email: publications@zpg.org
web: http://www.zpg.org

Counting on People
$19.95 + s&h • ©1994 • 147 pages • grades 1-6

People and The Planet
$22.95 + s&h • ©1996 • 189 pages • grades 5-10

Earth Matters
$19.95 + s&h • ©1991 • 177 pages • for High School

SUBJECTS

General Science,
Social Studies,
Environmental Science,
Family Life,
and
Economics

ZERO POPULATION GROWTH

Counting on People: Elementary Population and Environmental Activities
People and the Planet: Lessons for a Sustainable Future
Earth Matters: Studies for Our Global Future

IN A NUTSHELL

Counting on People is an activity book that shows young students the connections among people, living things, and the environment. The book serves as a primer on population dynamics and environmental impacts. It also fosters respect for the needs of others and stresses the importance of taking steps to live in harmony with the Earth. Students learn to understand these concepts by drawing on personal experiences and by reaching out into their communities. *People and the Planet* is an activity guide that develops students' understanding of the interdependence of people and the environment, as well as the interdependence connecting individuals with other members of the global family. The readings and activities are designed to broaden students' knowledge of trends and connections among population change, natural resource use, global economics, gender equity, and community health. This knowledge, combined with the critical-thinking skills developed in each activity, will help students explore their roles as global citizens and environmental stewards. *Earth Matters* introduces high school students to global environmental and societal issues, while challenging them to evaluate these issues critically and motivating them to develop solutions. Of the 13 chapters, 12 address specific issues of the global society and environment such as hunger, deforestation, and energy consumption. The final chapter, Finding Solutions, includes several activities that encourage personal decision making and individual actions. In all three guides, activity formats include games, simulations and role playing, lab studies, problem-solving challenges, cooperative learning activities, riddles, story analysis, library research, guided imagery, community service, and art projects. Activities include concepts, objectives, subject areas, skills, methods, procedures, discussion questions, follow-up activities, and assessment suggestions. Each guide also includes a glossary and resources section.

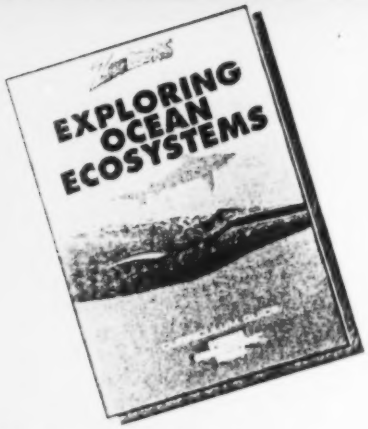
THE BOTTOM LINE

"On difficult, controversial topics, these materials have done a good job of presenting information in a neutral way and with a balance of opinions."

WHAT THE REVIEWERS SAID...

NAAEE GUIDELINES	STRENGTHS	THINGS TO CONSIDER
Fairness and Accuracy	A diversity of perspectives and human circumstances are explored with sensitivity. Encourages students to form their own opinions based on collected information and observations.	
Depth	Good presentation of a broad variety of concepts related to population and environmental issues. Issues are presented in historical, social, and economic contexts. Local to global connections are highlighted.	
Emphasis on Skills Building	Encourages critical and creative thinking. Students synthesize and organize information to form their own opinions. Skills are applied to issues and action projects.	
Action	Action orientation throughout. Activities encourage a sense of personal stake and responsibility through community activities. Focuses on local community issues and action.	Could use more support for teachers in facilitating action projects.
Instructional Soundness	Learner centered. Uses constructivist approach. Good variety of activities. Interdisciplinary. Connections are made to students' lives.	Primarily indoor activities. A few activities seem somewhat contrived–a lot of effort to make a point.
Usability	Well organized, clear, logical, and easy to use. Good background information for teachers. Student activities are easy to copy. Sidebars with objectives, concepts, and skills are very helpful.	

"This is one of the best curriculum materials I've seen that covers these issues."



ZOOBOOKS: EXPLORING OCEAN ECOSYSTEMS

Curriculum Guide
Dolphins and Porpoises
Penguins
Seabirds
Seals & Sea Lions
Sea Otters
Sharks
Turtles
Whales

GRADE LEVELS: 1-8

Timothy Levi Biel, Beth Wagner Brust and John Bonnett Wexo, Writers
Publisher: Wildlife Education, Ltd.
9820 Willow Creek Rd., Suite 300
San Diego, CA 92131-1112
(800) 477-5034
email: zoobooks@wec.com
web: http://www.zoobooks.com

Curriculum Guide (includes student books)
$29.95 + s&h • ©1994 • 122 pages

Dolphins and Porpoises ©1990 • 17 pages	Seals and Sea Lions ©1992 • 17 pages
Penguins ©1993 • 17 pages	Sea Otters ©1993 • 17 pages
Seabirds ©1990 • 17 pages	Sharks ©1993 • 17 pages
Turtles ©1993 • 17 pages	Whales ©1986 • 17 pages

SUBJECTS

Primarily Science,
with interdisciplinary connections

IN A NUTSHELL

Exploring Ocean Ecosystems is one module in the Zoobooks Program. It takes a thematic approach to teaching science and the scientific process, and it encourages learning across the curriculum. Students learn by doing–cooperatively, creatively, and at their own pace. The eight student Zoobooks included in this module are designed in a magazine format. Each contains articles, photographs, illustrations, facts, games, and activities. The educator's guide contains 10 lessons with hands-on investigations, game simulations, cooperative-learning activities, student-activity handouts, and cross-curriculum activities that integrate science with math, art, social studies, music, geography, literature, and other subject areas. Units in the educator's guide include The Ocean Ecosystems, Animal Adaptations, and Humans and the Ocean Ecosystems.

THE BOTTOM LINE

"Students learn to draw their own conclusions based on information given, observations, or activities."

WHAT THE REVIEWERS SAID...

NAAEE GUIDELINES	STRENGTHS	THINGS TO CONSIDER
Fairness and Accuracy	Balanced approach. Open to inquiry on issues.	Some minor errors in factual accuracy.
Depth	Concepts are presented within the context of oceans and ocean biodiversity. Emphasizes environmental and social issues. Looks at a variety of scales, from local to global and from short-term to long range.	
Emphasis on Skills Building	Encourages creative and critical thinking, analyzing, inferring, and drawing conclusions. Applies skills to issues.	Could use more focus on evaluating issues and experimental design.
Action	Encourages students to consider their own choices and behaviors. Focuses on responsibility. Good role-playing activities.	Could use some examples of success stories. Does not provide educators with strategies for facilitating action projects.
Instructional Soundness	Students build on previous knowledge. Caters to diverse learning styles. Includes individual and cooperative learning techniques and hands-on learning. Assessment suggestions are included.	Could use more background information for teachers.
Usability	Clear and easy to use. Maps, charts, and graphs are useful and easy to read. Adaptable.	

"Covers a variety of topics, presenting both scientific and social (human interactions) information."

"Encourages creative thinking in abundance."

	Title	Page #	Grade Level
1	A Child's Place in the Environment, Unit 3	10	3
2	Activities for the Changing Earth System	12	MS/HS
3	Adaptations: (Regional Environmental Education Program-REEP)	14	MS
4	Alaska's Ecology	16	K-12
5	Alberta's Threatened Wildlife	18	K-9
6	Animal Tracks	20	4-6
7	Backyard Biodiversity & Beyond	22	4-9
8	Biodiversity Basics–Exploring the Web of Life	24	MS
9	Biodiversity: Understanding the Variety of Life	26	4-6
10	Biodiversity Works for Wildlife. You Can Too!	28	4-8
11	Biological Diversity Makes a World of Difference	30	4-6
12	Bottle Biology	32	K-12
13	Connections: The Living Planet	34	4-12
14	Conservation Biology	36	11-12
15	Eco Inquiry: A Guide to Ecological Learning Experiences	38	MS
16	Ecological Citizenship	40	K-8
17	Ecology for All Ages: Discovering Nature through Activities for Children and Adults	42	all
18	Economics and the Environment	44	HS
19	Eco Sense: An Economic Environmental Learning Kit	46	2-12
20	Endangered Species	48	7-9
21	Environmental Education Module on Biological Diversity	50	MS/HS
22	Environomics: Exploring the Links Between the Economy and the Environment	52	HS
23	Global Environmental Change Series	54	HS
24	Global Environmental Education Resource Guide	56	MS
25	Global Issues in the Middle School	58	MS
26	Global Systems Science Series	60	HS
27	Global Warming and the Greenhouse Effect	62	7-10
28	Habitat and Biodiversity	64	MS/HS
29	Heath Environmental Literacy Program	66	HS
30	Mud, Muck and Other Wonderful Things	68	K-3
31	Ocean News	70	7-10
32	Our Oceans, Ourselves: Marine Biodiversity for Educators	72	all
33	Our Only Earth Series: A Curriculum for Global Problem Solving	74	4-12
34	Population Reference Bureau, Inc.	76	K-12
35	Project Learning Tree	78	Pre K-12
36	Project WET Curriculum and Activity Guide	80	K-12
37	Project WILD	82	K-12
38	Ranger Rick's NatureScope Series	84	K-8
39	Relationships of Living Things, Macmillan/McGraw-Hill Science	86	3
40	Science-Technology-Society: Preparing for Tomorrow's World	88	HS/C
41	Teacher's Guide to World Resources: Biodiversity	90	HS
42	Threatened and Endangered Animals (An Extended Case Study)	92	8-12
43	What is It? A Guide to Biological Identification	94	all
44	Wildlife for the Future	96	K-8
45	WOW! The Wonders of Wetlands	98	K-12
46	Zero Population Growth	100	1-12
47	Zoobooks: Exploring Ocean Ecosystems	102	1-8

SUBJECTS
Arts
English/Lang. Arts
Health/Phys. Ed.
Mathematics
Science
Social Studies
TOPICS
Air Quality
Aquatic/Marine
Biodiversity (general)
Ecology
Economics
Endangered Species
Energy
Environmental Issues
Ethics/Values
Forests/Plants
Global Change
Population
Rain Forests
Resource Management
Social Action
Solid Waste
Water Quality
Wildlife
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During our review process, we identified a variety of resources that our reviewers felt would enhance a biodiversity unit or program. The following resources include general background information, selected children's books and magazines, multimedia resources, web sites, and a variety of other resources focused on biodiversity issues. These resources did not go through the same extensive review as the curriculum materials in Part I. However, all were reviewed by at least two educators and selected to be included in this bibliography.

Additional Resources

This collection highlights some of the best materials we found: however, there are many other resources available on biodiversity. We encourage you to visit your local libraries, nature centers, zoos, aquariums, museums, and state and local government offices for more information to round out your biodiversity programs. Also remember that ordering information, such as web addresses, may change frequently. Let us know if you have corrections for future editions.

General Background

Biodiversity, (Adult)

by Dorothy Hinshaw Patent, is an introduction to biodiversity. It presents a picture of the interconnectedness of all living things on Earth and tells why it is important to save biodiversity. • *Clarion Books, 1996.*

Conservation and Biodiversity, (Secondary-Adult)

by Andrew P. Dobson, is an introduction to the issues surrounding biodiversity with specific illustrations of its scientific and economic value. Full of photos, illustrations, and charts, it is useful for educators looking for background information on biodiversity. • *Scientific American Library, 1996.*

Conserving the World's Biological Diversity, (Adult)

by Jeffrey McNeely et al., explains what biodiversity is, why it's important, and how to conserve it. • *Island Press, 1990.*

The Diversity of Life, (Secondary-Adult)

by Edward O. Wilson, is an excellent introduction to biodiversity that looks at how the species of the world have become diverse, what the causes and consequences of biodiversity loss are, and what people can do to help tackle the crisis. • *W. W. Norton, 1992.*

Ghost Bears: Exploring the Biodiversity Crisis, (Adult)

by R. Edward Grumbine, explores the causes and effects of habitat destruction and of species loss by examining the plight of the grizzly bear in the Greater North Cascades. • *Island Press, 1992.*

The Idea of Biodiversity: Philosophies of Paradise, (Adult)

by David Takacs, analyzes what biodiversity represents to the biologists that work on its behalf. Takacs explores biologists' definitions and opinions of biodiversity, plus its role in their scientific and spiritual lives. • *John Hopkins University Press, 1996.*

The Last Harvest: The Genetic Gamble that Threatens to Destroy American Agriculture, (Adult)

by Paul Raeburn, is an award-winning book that explains how our food supply is threatened by genetic manipulation, and how losing biodiversity in terms of the world's food supply affects us. It investigates the changes in genetic diversity in agricultural crops and offers insight on solutions for preserving varieties of plant and animal species. • *Simon and Schuster, 1995.*

Naturalist, (Secondary-Adult)

by E. O. Wilson, is an autobiographical account of the ever-evolving life of Edward Wilson, one of the world's leading experts on biodiversity. • *Island Press, 1994.*

Nature's Services: Societal Dependence on Natural Ecosystems, (Adult)

edited by Gretchen C. Daily, is a compilation of writings on the relationship between humans and the biosphere. It describes the services provided by ecosystems, ranging from flood control and soil fertility to new pharmaceuticals and food resources. • *Island Press, 1997.*

Our Ecological Footprint: Reducing Human Impact on the Earth, (Adult)

by Mathis Wackermagel and William Rees, converts seemingly complex ecological concepts into a more graphic form that everyone can understand. The book provides readers with easy-to-use tools for measuring and visualizing the resources required to sustain our households, communities, regions, and nations. • *New Society, 1996.*

Rescue Mission–Planet Earth: A Children's Edition of Agenda 21, (Middle School-Adult)

in association with the United Nations, this edition is a follow-up project to the 1992 Earth Summit. It displays the artwork, writings, and visions of children about the environment and sustainable development. The book's sections address the natural world, the human world, and the world of science and policy, and it offers ideas for young people to get involved. • *Kingfisher Books, Grisewood & Dempsey, 1994.*

Saving Nature's Legacy: Protecting and Restoring Biodiversity, (Adult)

by Reed F. Noss and Allen Y. Cooperrider (two leading conservation biologists), is a thorough and readable introduction to issues of land management and conservation biology. • *Island Press, 1994.*

The Value of Life: Biological Diversity and Human Society, (Adult)

by Stephen Kellert, examines how humans value nature. Drawing on 20 years of research, Kellert considers how factors such as gender, age, ethnicity, occupation, and geographic location affect our values of nature and biodiversity. • *Island Press, 1996.*

Children's Books and Magazines

An Adventure in the Amazon, (Intermediate)

by the Cousteau Society, is a photo-filled look at the rain forest's inhabitants, including native human cultures and the threats to them. Based on the Cousteau Society's two-year exploration of the Amazon River basin, the book highlights the incredible diversity of life that is being lost as a result of rain forest destruction. • *Simon & Schuster, 1992.*

Bibliography

And Then There Was One: The Mysteries of Extinction, (Intermediate)

by Margery Facklam, focuses on the process of extinction, both natural and human-induced, rather than on the loss of one particular species. Concepts introduced include evolution, adaptation, natural selection, speciation, and human factors of extinction. • *Sierra Club, 1993.*

Bats, Bugs, and Biodiversity: Adventures in the Amazonian Rain Forest, (Middle School)

by Susan E. Goodman, describes a seventh-grade class's travels in the Peruvian Amazon rain forest, where they learn about the creatures and cultures of the region and gain appreciation for the importance of rain forest conservation. • *Atheneum, 1995.*

Beneath Blue Waters: Meetings with Remarkable Deep-Sea Creatures, (Intermediate-Middle School)

by Deborah Kovacs and Kate Madin, explores the incredible diversity of life in the deep regions of the ocean. Young readers will be amazed at the number and beauty of the creatures living miles below the surface.• *Viking, 1996.*

Insects, (Intermediate)

by Laurence Mound, helps readers discover the world of insects in close-up--their behavior, anatomy, and important role in the Earth's Ecology. • *Eyewitness Books, Alfred A. Knopf, 1990.*

Earthdance, (Middle School)

by Joanne Ryder, helps readers imagine that they are the Earth itself--home to myriad plants, animals and cultures. An appreciation for the complexity of life on Earth is emphasized during this imaginary adventure. • *Henry Holt & Co., 1996.*

Earth Kids, (Primary-Middle School)

by Jill Wheeler, tells empowering stories of individual children who have taken action in preserving the environment. Some of the children highlighted have helped to preserve forests, defend animals, and clean up beaches, water, and air. • *Abdo & Daughters, 1993.*

The Great Kapok Tree, (Intermediate-Middle School)

by Lynne Cherry, describes how resident creatures of the rain forest save their Kapok tree home from being chopped down by whispering in the ear of the man who has come to cut it down. • *Harcourt Brace Jovanovich, 1990.*

Herman and Marguerite: An Earth Story, (Intermediate)

by Jay O'Callahan, describes how a friendship between an earthworm and a caterpillar helps to bring a broken-down orchard back to life. It discusses the role that invertebrates play in decomposition and soil enrichment. • *Peachtree, 1996.*

Julie of the Wolves, (Middle School-Adult)

by Jean Craighead George, is the winner of the 1972 Newbery Medal. It describes the life of an Eskimo girl protected by a wolf pack. While lost on the tundra, she begins to appreciate her heritage and a oneness with nature that is being destroyed in our modern world. • *Harper/Collins, 1972.*

Living Treasure: Saving Earth's Threatened Biodiversity, (Intermediate)

by Laurence Pringle, is an illustrated text for young people curious about biodiversity. The book discusses the diversity of life, reasons for preserving it, and actions people can take to conserve it. • *Morrow Junior Books, 1991.*

No More Dodos: How Zoos Help Endangered Wildlife, (Secondary)

by Nicholas and Theodore Nirgiotis, is a look at the role of zoos in the preservation of wildlife diversity throughout the world. The book also contains a list of conservation organizations. • *Lerner, 1996.*

Of Things Natural, Wild, and Free: A Story About Aldo Leopold, (Primary)

by Marybeth Lorbiecki, is an illustrated story about the naturalist, Aldo Leopold. • *Carolrhoda Books, Inc., 1993.*

Ranger Rick Magazine, (Primary-Intermediate)

published by the National Wildlife Federation, is a monthly nature magazine for elementary-age children. *Ranger Rick* aims to inspire in its readers a greater understanding of the natural world, a deep love of nature and wildlife, and a lasting commitment to conservation and environmental action. • *National Wildlife Federation. Available from Ranger Rick, P.O. Box 777, Mt. Morris, IL 61054. Phone orders: (815) 734-1160.*

Ride the Wind: Airborne Journeys of Animals and Plants, (Intermediate)

by Seymour Simon, is a colorful story about the ways animals and plants migrate. It explains the missions of various creatures' travels and their ability to return home. • *Harcourt Brace, 1997.*

Saving Planet Earth, (Middle School-Adult)

by Rosalind Kerven, provides examples of worldwide conservation efforts. Identifying the Industrial Revolution as the starting point for many of our current environmental problems, the book looks at the way people around the world are meeting environmental challenges. • *Watts, 1992.*

A Desert Scrapbook: Dawn to Dusk in the Sonoran Desert, (Intermediate-Middle School)

by Virginia Wright-Frierson, gives readers a tour of the Sonoran Desert. If they think that the desert is only full of sand, they'll be amazed at the diversity of life they'll encounter in this scrapbook, illustrated by the author. • *Simon & Schuster, 1996.*

Squishy, Misty, Damp, and Muddy: The In-Between World of Wetlands, (Intermediate-Middle School)

by Molly Cone, uses stunning photos and innovative text to demonstrate the diversity of life in wetlands. The book also explores threats to this habitat and the importance of its preservation. • *Sierra Club, 1996.*

A Tree Is Nice, (Primary)

by Janice May Udry, a 1956 Caldecott Medal winner, describes the virtues and beauty of trees. The book includes simple poetic text and full-color illustrations. • *Harper Collins, 1988.*

Vanishing Animal Neighbors, (Intermediate-Middle School)

by Geraldine Marshall Gutfreund, provides readers with information and anecdotes about five potentially endangered species. Filled with photos, legends, and sidebars, the book is written in a personal and engrossing style. • *Watts, 1993.*

Welcome to the Green House, (Intermediate)

by Jane Yolen, describes and illustrates a tropical rain forest house, where the trees are the walls, the canopy of leaves is the roof, and the inhabitants are fascinating creatures of all shapes and colors. • *GP Putnam and Sons, 1993.*

WOW!–A Biodiversity Primer, (Middle School)

by World Wildlife Fund, is a full-color, magazine-style primer for middle school students to help them understand biodiversity. This award-winning primer was published by WWF's environmental education program, *Windows on the Wild*. • *World Wildlife Fund, 1994.*

Young Explorer's Guide to Undersea Life, (Elementary)

by Pam Armstrong, introduces children to sea lions, whales, sharks, moon jellies, and other sea life. Watercolor illustrations depict life in diverse marine habitats. • *Monterey Bay Aquarium Press, 1996.*

Yuck! A Big Book of Little Horrors, (Intermediate-Middle School)

by Robert Snedden, is a big look at some small creatures. With bright color enlargements, the author shows us the diversity of life crawling around us everyday–in our beds, floors, food, and body–without us even knowing about it. • *Simon & Schuster, 1996.*

Multi-Media Resources

VIDEOS

Biodiversity! Exploring the Web of Life Education Kit, (Middle School)

introduces young people to biodiversity. This half-hour video explores the meaning of biodiversity, its status, and what people can do to protect it. An educator's guide is included in the kit along with *WOW!–A Biodiversity Primer*, a full-color magazine for students. • *Available from WWF Publications, Dept. CA5, P.O. Box 4866, Hampden Post Office, Baltimore, MD 21211. Phone orders: (410) 516-6951.*

The Biodiversity Crisis: Gone Before You Know It, (Secondary)

is part of the WGBH Collection, *The Secret of Life*. It tells how biodiversity is being threatened through the story of Hawaii's national bird, the Nene. The video is approximately 15 minutes. • *Available from Films for the Humanities and Sciences, P.O. Box 2053, Princeton, NJ 08543-2053. Phone orders: (800) 257-5126.*

Diversity Endangered, (Secondary)

covers a range of threats to biodiversity, including habitat loss, pollution, and climate change. This short video (9 minutes) was produced by the Smithsonian Institution Traveling Exhibition Service (SITES). • *Available from SITES, 1100 Jefferson Dr. SW, Quad 3146, Washington, DC 20560. Phone orders: (202) 357-3168.*

The Diversity of Life, (Secondary)

is a 25-minute video that is produced by the National Geographic Society and that examines the diversity of plant and animal species. The video describes the importance of preserving endangered species and habitat, and it offers possible solutions to the loss of biodiversity. • *Available from the National Geographic Society, Educational Services, P.O. Box 98109, Washington, DC 20090-8019. Phone orders: (800) 368-2728.*

Going, Going, Almost Gone! Animals in Danger Education Kit, (Elementary)

includes an award-winning video about biodiversity, habitat loss, and the illegal trade of wildlife. The 28-minute video is produced by World Wildlife Fund and HBO, and it features celebrity voice-overs by actors Edward Asner, Judd Hirsh, Jasmine Guy, and others. The kit includes an educator's guide and color poster. • *Available from WWF Publications, Dept. CA5, P.O. Box 4866, Hampden Post Office, Baltimore, MD 21211. Phone orders: (410) 516-6951.*

Green Means, (Secondary-Adult)

is a series of short programs about ordinary people who are making positive contributions to the health of the planet. • *Available from Environmental Media, P.O. Box 1016, Chapel Hill, NC 27514. Phone orders: (800) 368-3382, email: <enveduc@aol.com>.*

The Last Show on Earth, (Secondary-Adult)

celebrates the efforts of individuals who are struggling to save endangered species while illustrating the causes of extinction. • *Available from Bullfrog Films, P.O. Box 149, Oley, PA 19547. Phone orders: (800) 543-3764; email: <bullfrog@igc.apc.org>.*

Life on Earth, (Secondary-Adult)

is a compilation of programs from the television series of the same title hosted by David Attenborough. The four-hour video comes with an index for educators looking for video segments pertinent to the subject they are teaching. • *Available from Delta Education, P.O. Box 3000, Nashua, NH 03061-3000. Phone orders: (800) 442-5444.*

"Web of Life" Education Kit, (Secondary-Adult)

includes a two-hour, award-winning video, *Web of Life: Exploring Biodiversity*, co-produced by WWF and WQED/Pittsburgh. The video kit explores the amazing world of biodiversity. An accompanying educator's guide extends concepts introduced in the video through additional information and activities. • *Order from WWF Publications, Dept. CA5, P.O. Box 4866, Hampden Post Office, Baltimore, MD 21211. Phone orders: (410) 516-6951.*

Wild About Life, (Middle School-Secondary)

is a docudrama about four teenagers who discover the value of the variety of life on Earth–from wolves reintroduced to Yellowstone to snails thriving in a restored wetland. Inspired by the successful efforts of wildlife biologists and teenagers like themselves, they learn how to take action at their local level. • *Order from the National Conservation Training Center, Route 1, Box 166, Shepherdstown, WV 25443. Phone: (304) 876-1600 or (304) 876-7200.*

AUDIO TAPES

Life on the Brink and Oceans of Life Kits, (Middle School)

is part of the "Radio Expeditions" series produced by National Public Radio and National Geographic Society. Kit includes a CD or audio tape, teacher's guide, and poster. Hour-long recordings of "Radio Expeditions" shows are also available. *Life on the Brink* focuses on biodiversity on land, while *Oceans of Life* looks at the oceans' resources. • *To order, call (202) 414-2843, or for more information, look on the Web at <http://www.npr.org> under programs.*

POSTERS

Biodiversity–From Sea to Shining Sea, (Intermediate-Secondary)

is a poster kit produced by World Wildlife Fund. It includes two 22" x 34" two-sided posters (the front features 12 photographs highlighting the amazing diversity of life on Earth; the back includes a map of the most threatened ecoregions in the United States) and a 12-page educator's guide with background information about biodiversity and suggestions for how to use the poster. • *Order from WWF Publications, Dept. CA5, P.O. Box 4866, Hampden Post Office, Baltimore, MD 21211. Phone orders: (410) 516-6951.*

Diversity Endangered, (Middle School-Secondary)

is a poster exhibition kit designed by the Smithsonian Institution Traveling Exhibition Service (SITES). The kit includes 15 posters that feature issues and challenges related to biodiversity. • *Available from SITES, 1100 Jefferson Dr. SW, Quad 3146, Washington, DC 20560. Phone orders: (202) 357-3168.*

Eye on the Environment, (Middle School-Secondary)

from National Geographic Society, features nine key global environmental issues all linked to biodiversity. Each poster set includes three posters that give an overview of the problem, a focus on an individual issue, and a worldview offering possible solutions. A teacher's guide is also included. • *Available from National Geographic Society, Educational Services, P.O. Box 98109, Washington, DC 20090-8019. Phone orders: (800) 368-2728.*

Rainforests of the World, (Middle School-Secondary)

is a poster series sponsored by the Jane Goodall Institute for Wildlife Research, Education, and Conservation. The four types of rain forest posters–Neotropical, Southeast Asian, African, and Northwest Coast–each come with an educator's guide. • *Phone orders: (800) 841-2665.*

CD-ROMS AND VIDEODISCS

Cal Alive!, (Middle School)

is a CD-ROM project created by the California Institute for Biodiversity to explore the plants, animals, and habitats of the state. The program uses photo images, computer animation, and satellite images in activities, games, and quizzes. Teacher resource guides and workshops are available, and titles for all age levels are planned. • *CD-ROMs available beginning fall 1997 from California Institute for Biodiversity, 11 Embarcadero West, Suite 120, Oakland, CA 94607 Phone orders: (510) 444-6629.*

113

Earth's Endangered Environments, (Middle School)

is a *National Geographic Picture Show* that introduces rain forest and wetland ecosystems, deforestation, and pollution. The CD-ROM is compatible for Macintosh and Windows and includes a user's guide, scripts, student information, and classroom activities. • *Available from the National Geographic Society, Educational Services, P.O. Box 98109, Washington, DC 20090-8019. Phone orders: (800) 368-2728.*

Earth Explorer, (Middle School-Adult)

presents information on environmental issues. The presentation includes games to develop critical thinking skills, a compendium of original graphic art, media presentations and audio clips, interactive data sets, and several hundred articles and photos in interactive formats. It is sponsored by the National Science Foundation and is prepared in cooperation with the American Association for the Advancement of Science. • *Order through Sunburst Communications, 101 Castleton St., Pleasantville, NY 10570. Phone orders: (800) 321-7511. Web address: <http://www.nysunburst.com>.*

Encyclopedia of U.S. Endangered Species, (Secondary-Adult)

contains reports on U.S. endangered species, maps, photos, and a glossary. Presentations are by World Wildlife Fund, The Nature Conservancy, Threatened & Endangered Species Information Institute, and ABC News. Windows compatible. • *Available from ZCI Inc. by phone: (800) 808-0623 ext. 101.*

Eyewitness Encyclopedia of Nature, (Elementary)

is an illustrated, interactive CD-ROM that is full of information and activities about plants and animals. Users can examine biodiversity through the *Web of Life* book, which includes subjects titled The Biosphere, Natural Cycles, Energy Flow, and Living Together. • *Available from DK Multimedia, 95 Madison Ave., New York, NY 10016. Phone orders: (800) 356-6575.*

The Great Ocean Rescue, (Middle School)

introduces students to marine ecosystems and marine biodiversity. The kit includes student reference booklets and a teacher's guide with lesson plans, worksheets, and activities. Windows or Macintosh compatible. • *Information via web homepage:<http://www.teachtsp.com>. Available from Tom Snyder Productions, Inc., 80 Coolidge Hill Rd., Watertown, MA 02172-9718. Phone orders: (800) 342-0236.*

Rainforest Researchers, (Middle School)

engages students in assignments about rain forest plants. Broader themes involve the study of biodiversity, the tropical rain forest issues, and the management of biological resources. The kit includes student reference books, teacher's guide, and CD-ROM. Windows or Macintosh compatible. • *Available from Tom Snyder Productions, Inc., 80 Coolidge Hill Rd., Watertown, MA 02172-9718. Phone orders: (800) 342-0236.*

GTV: Planetary Manager, (Middle School-Secondary)

encourages students to investigate environmental problems and grapple with solutions. • *Available from the National Geographic Society, Educational Services, P.O. Box 98109, Washington, DC 20090-8019. Phone orders: (800) 368-2728.*

Habitat and Dependence, (Middle School-Secondary)

looks at habitats, food chains, and ecological interdependence as it examines how humans affect their surroundings. • *Available from Journal Films, 1560 Sherman Avenue, Suite 100, Evanston, IL 60201. Phone orders: (800) 421-2363.*

Biodiversity-Related World Wide Web Sites

American Zoo and Aquarium Association

<http://www.aza.org> is a natural link to most aquariums and zoos in the United States. It also includes information on conservation programs, careers, and a photo gallery.

Biodiversity and Biological Collections

<http://kaw.keil.ukans.edu> is full of biological data and links to journals, museums of natural history, and other reference materials. This site may be for more advanced researchers.

Biological Resources Division of the Department of Interior

<http://www.nbs.gov> is where you can obtain data, information, and links to all aspects of biodiversity in the public and private sector. It is useful as a springboard to state and local sites and also contains resources for educators and a kid's corner.

Educational Resources Information Center (ERIC)

<http://ericir.syr.edu> is the address for ERIC. Supported by the U.S. Department of Education and the National Library of Education, ERIC is a national information system designed to provide users with ready access to an extensive body of education-related literature. On this site you can access the Online ERIC Publications Catalog, the Question and Answer Service, the ERIC Database, links to other education sites, and numerous products to help you access and use the information in the ERIC system.

EELink

<http://www.nceet.snre.umich.edu> is a gopher and World Wide Web site for environmental education. It connects educators with information and ideas that will help them explore the environment and investigate current issues with students. The site includes print documents and links to EE-related organizations and materials on the Internet.

Eisenhower National Clearinghouse (ENC) for Mathematics and Science Education

<http://www.enc.org> contains information on ENC, part of the U.S. Department of Education's continuing efforts to reform K-12 math and science education. The site includes activities to raise standards, journal articles, listing of conferences and special events, and links to many other sites.

U.S. Fish and Wildlife Service

<http://www.fws.gov> is the site of the U.S. Fish and Wildlife Service, which is part of the Department of Interior and whose mission is to conserve, protect, and enhance fish and wildlife. Information is available for educators on wildlife laws, environmental education, and the national wildlife refuge system. The site also includes extensive database access for other searches on wildlife information, including a current list of endangered and threatened species.

JASON Project

<http://www.jasonproject.org> provides an opportunity for teachers and students to take electronic field trips to explore the deep oceans. Teacher's guides and links to technology resources for the classroom can also be found on this site.

North American Association for Environmental Education

<http://www.nceet.snre.umich.edu/naaee.html> contains information on the organization; membership, conferences, and environmental education are also included. It is primarily geared to educators.

National Park Service

<http://www.nps.gov> connects to the National Park Service (NPS). Besides the abundant information on NPS, this site has a wide range of information for educators, such as the "Parks as Classrooms" programs, which include curriculum materials, videos, accredited teacher training, traveling trunks and kits, and teacher and student resource packets.

National Wildlife Federation–Kid's Page

<http://www.nwf.org/nwf/kids> features games, connections to *Ranger Rick* Magazine, activities, and more. Information can be found on water issues, wetlands, endangered species, and public lands.

Rainforest Alliance

<http://www.rainforest-alliance.org> is the initial connection site. From here, go to the "Schoolhouse" page where you will find information for kids and teaching materials for educators.

Second Nature

<http://www.starfish.org> is Second Nature's home page, which brings environmental education on-line with "Starfish." Starfish was developed to help educators infuse environmental and sustainability concepts into their teaching. Use "biodiversity" as the keyword to search databases on university-level courses offered by faculty members in over 35 disciplines; a bibliography with over 1000 references; and comprehensive information on more than 20 innovative teaching and learning techniques.

U.S. Forest Service

<http://www.fs.fed.us> includes information on forests and forestry for educators and students. Publications, maps, and research information are included, as well as links to other federal web sites.

Virtual Library of Ecology, Biodiversity, and the Environment

<http://conbio.rice.edu/vl> provides a wide range of ecology and biodiversity-related topics, including specific information on plant and animal species. It links to periodicals and journals for more advanced research.

World Resources Institute

<http://www.wri.org/biodiv> presents general information on biodiversity issues, plus additional pages for educators looking for on-line activities.

World Wildlife Fund

<http://www.wwf.org/windows> is home to the *Windows on the Wild* Program. Take a quiz to test your biodiversity IQ, access resources for teaching about biodiversity, and learn about biodiversity issues.

Other Curriculum Resources

The Biodiversity Debate: Exploring the Issue, (Secondary-Adult)

is the fourth book in the Environmental Issues Forums series, produced by the North American Association for Environmental Education in collaboration with World Wildlife Fund. This discussion guide delves into the complex issue of biological diversity and presents three different perspectives of viewing what the problem is and how it might be resolved. Helps people discuss this controversial issue and learn more about underlying values and beliefs that influence our thinking. • *Available from Kendall/Hunt Publishing Company. Phone orders: (800) 228-0810.*

Biodiversity: The Florida Story, (Middle School)

is a set of five teachers' guides in newsletter format that are linked to the Florida Sunshine State Standards. Topics include urbanization and economics; agriculture and land management; water quality and its relationship to land use, management, public/private partnerships; and non-native species, indicator species and their relationship to public/private partnerships. Materials are obtained by attending a facilitated teacher workshop in Florida. • *For more information, contact the Office of Environmental Education/Florida Gulf Coast University, 1511 Paul Russell Rd., Ste. 201A, Tallahassee, FL 32399-0400.*
Web address: <http://www.polaris.net/~oee/>

Eco Quest, (Intermediate-Middle School)

is a challenging unit on the concept of reducing an individual's ecological footprint. Sponsored by Lever Ponds, the kit contains a teacher's guide, student workbook, full-color posters, and an audio tape. • *Developed and published by Co-Ed Communications. Phone orders: (416) 955-9526. Free.*

Ecosystems Matters: Activity and Resource Guide for Environmental Educators, (All levels)

is a collaborative effort of the U.S. Department of Agriculture and the U.S. Forest Service, Rocky Mountain Region. U.S. Government Printing Office: 1995-577-064. It focuses on ecosystem management and is designed to supplement existing courses and programs for classroom teachers, scout leaders, nature camp instructors, forest rangers, and naturalists. • *Contact the nearest Government Printing Office for more information, or call (202) 512-1800.*

Endangered Species Issue Pac, (Middle School)

is just one of several topics covered in this U.S. Fish and Wildlife Service series on conservation education. This pac includes activities about endangered species, a postet, puzzle, and issue overview. Other titles include *Migratory Birds, Wetlands Conservation and Use, Freshwater Marsh, Beaches, Dunes and Barrier Islands, Rivers and Streams, Urban Areas, Developed Lands: Restoring and Managing Wildlife Habitats, Hunting and Wildlife Management,* and *Wildlife Conflicts.* • *Order from Urban Wildlife Resources, 5130 West Running Brook Rd., Columbia, MD 21044. Phone orders: (410) 997-7161.*

The New Explorer's Series: Test Tube Zoo, (Middle School-Secondary)

is a classroom extension of the PBS program, *The New Explorer,* which profiles scientists and their research. These activities are geared for use in conjunction with videotapes of the program. • *For more information, contact Lincoln Park Zoological Gardens, Department of Education, 2200 North Cannon Dr., Chicago, IL 60614.*

Rainforest Lifeline, (Intermediate-Middle School)

is a resource guide to tropical forests with a focus on action. Includes a 70-page activity book, teacher's guide, full-color book for kids about a rain forest in Costa Rica, and a six-minute video. Developed and published by World Wildlife Fund–Canada. • *Ordering information: Scholastic Canada (800) 268-3848 or (905) 883-5300, order number 96C-225036.*

Schools for Wildlife, (Intermediate-Middle School)

is an educational package produced by WWF–Canada three times a year. Each issue focuses on a specific conservation issue: wilderness, species, or rain forests. • *Contact WWF–Canada at (416) 489-8800. Free.*

Science Is Elementary, (Primary-Intermediate)

is a resource magazine that provides activities, necessary background information, extensions, integrations, and suggestions for authentic assessment congruent with national benchmarks. Volume 9 includes four issues: Biodiversity, Habitats, Ecosystems, Our Changing World, and Populations. • *Available from MITS, 79 Milk St., Suite 210, Boston, MA 01929-3903. Phone orders: (617) 695-9771.*

TAKING ACTION: An Educator's Guide to Involving Students in Environmental Action Projects, (All levels)

is a collaborative project of World Wildlife Fund and Project WILD. The guide helps educators plan, implement, and evaluate environmental education projects. It includes examples of successful action projects, as well as a step-by-step planning process and a comprehensive bibliography • *Available from WWF Publications, Dept. CA5, P.O. Box 4866, Hampden Post Office, Baltimore, MD 21211. Phone orders: (410) 516-6951.*

Wildlife, (Middle School)

is a unit of the *Adopt-A-Watershed Program,* an integrated K-12 science curriculum that uses a local watershed as a focal point for bringing theory into application. Themes covered in the *Wildlife* unit include evolution, patterns of change, and stability. • *Available from Adopt-A-Watershed Program, P.O. Box 70, Hayfork, CA 96041. Phone orders: (916) 628-5294 or 628-4608.*

Wildlife Diversity: The Links of Life, and Forests Forever, (Intermediate-Middle School)

are just two of many activity guides related to the Minnesota region's biodiversity • *Created by The University of Minnesota, Minnesota Extension Service, Room 20, Coffey Hall, 1420 Eckles Ave., St. Paul, MN 55108-6069.*

W.I.Z.E: Wildlife Inquiry Through Zoo Education, (Middle School-Secondary)

developed by The Bronx Zoo Education Department, is a two-part curriculum. *Diversity of Lifestyles* (Module 1) is designed for middle school. *Survival Strategies* (Module 2) is for secondary students. • *For more information contact: Manager of National Programs, Education Department, Bronx Zoo/Wildlife Conservation Park, Bronx, NY 10460, (800) 937-5131.*

Index of Authors, Editors and Publishers

Acorn Naturalists 24
Alaska Department of Fish and Game, Division of Wildlife Conservation 16
Alberta Environmental Protection 18
American Forest Foundation 78
Anderson, Curt L. 44
Andrews, William A. 66
Ballard, Heidi L. 36
Bamfield Marine Station 70
Baron, Nancy 72
Barrett, Katherine 60
Bastardo, Peter J. 88
Benegar, John 58
Biel, Timothy Levi 102
Binder, Deanna 22
Blair, Robert B. 36
Braus, Judy 24, 84
Brust, Beth Wagner 102
Business Economics Education Foundation 46
California Department of Education 10
Campa III, Dr. Henry 50
Canadian Foundation for Economic Education 52
Canadian Wildlife Federation 28
Caylor, Robert E. 56
Center for Conservation Biology, Stanford University 36
Chicago Academy of Sciences, The 40
Christie, Nancy 14
Circumpolar Press 16, 96
Clymire, Olga N. 10
Council for Environmental Education 80, 82
Dale Seymour Publications 64
EZ: Environment and Education (The Tides Center) 64
Earth Systems Education Program, The Ohio State University 12
Environment Canada 72
Erickson, John 60, 62
Ginn Publishing Canada, Inc. 34
Globe Pequot Press, The 42
Golden, Richard 60, 62
Gould, Alan 60
Guy, Stewart 22
Hagengruber, David 92
Hancock, Judith M. 94
Hessler, Edward 30
Hocking, Colin 62
Hogan, Kathleen 38
Hungerford, Harold 92
Hunken, Jorie 42
Ingram, Mrill 32
Institute of Marine Sciences, University of Southern Mississippi 56
Iozzi, Louis A. 88
ITP Nelson Canada 66

BEST COPY AVAILABLE

J. L. Scott Marine Education Center and Aquarium 56
J. Weston Walch 94
Johnson, Jacquelyn 58
Johnston, Debbie 46
Kendall/Hunt Publishing Company 32, 36, 38
Kroll, Mary 48, 68
Lawrence Hall of Science 60, 62
Macmillan/McGraw Hill School Division 86
MacRae-Campbell, Linda 74
Mason, Adrienne 72
McClaren, Milton 34
McGraw-Hill Inc. 84
McKisson, Micki 74
Michigan State University 50
Ministry of Environment, Lands, and Parks, Province of British Columbia 22
Mycio-Mommer, Luba 28
National 4-H Council 48, 68
National Council on Economic Education 44
National Education Association 20
National Parks and Conservation Association 30
National Science Teachers Association 54
National Wildlife Federation 20, 84
Ohio State University, Earth Systems Education Program 12
Penn, Briony 22
Peyton, Dr. R. Ben 50
Population Reference Bureau, Inc. 76
Province of British Columbia, Ministry of Envrionment, Lands, and Parks 22
Rabbior, Gary 52
Samples, Bob 34
Scholastic Inc. 26
Schuylkill Center for Environmental Education, The 14
Singleton, Laurel R. 58
Sneider, Cary 60, 62
Social Science Education Consortium 58
Sopris West, Inc. 88
Stanford University, Center for Conservation Biology 36
Stipes Publishing L. L. C. 92
Tides Center, E2: Environment and Education, The 64
University of California 60, 62
University of Southern Mississippi, Institute of Marine Sciences 56
University of Wisconsin at Madison 32
Walker, Sharon H. 56
Watercourse, The 80, 98
Wexo, John Bonnett 102
Wildlife Education, Ltd. 102
Winterstein, Dr. Scott R. 50
World Resources Institute Publications 90
World Wildlife Fund 24
Zephyr Press 74
Zero Population Growth 100

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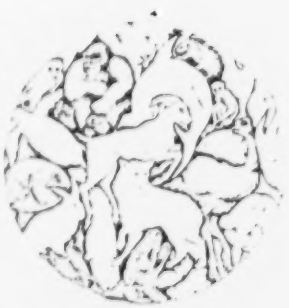

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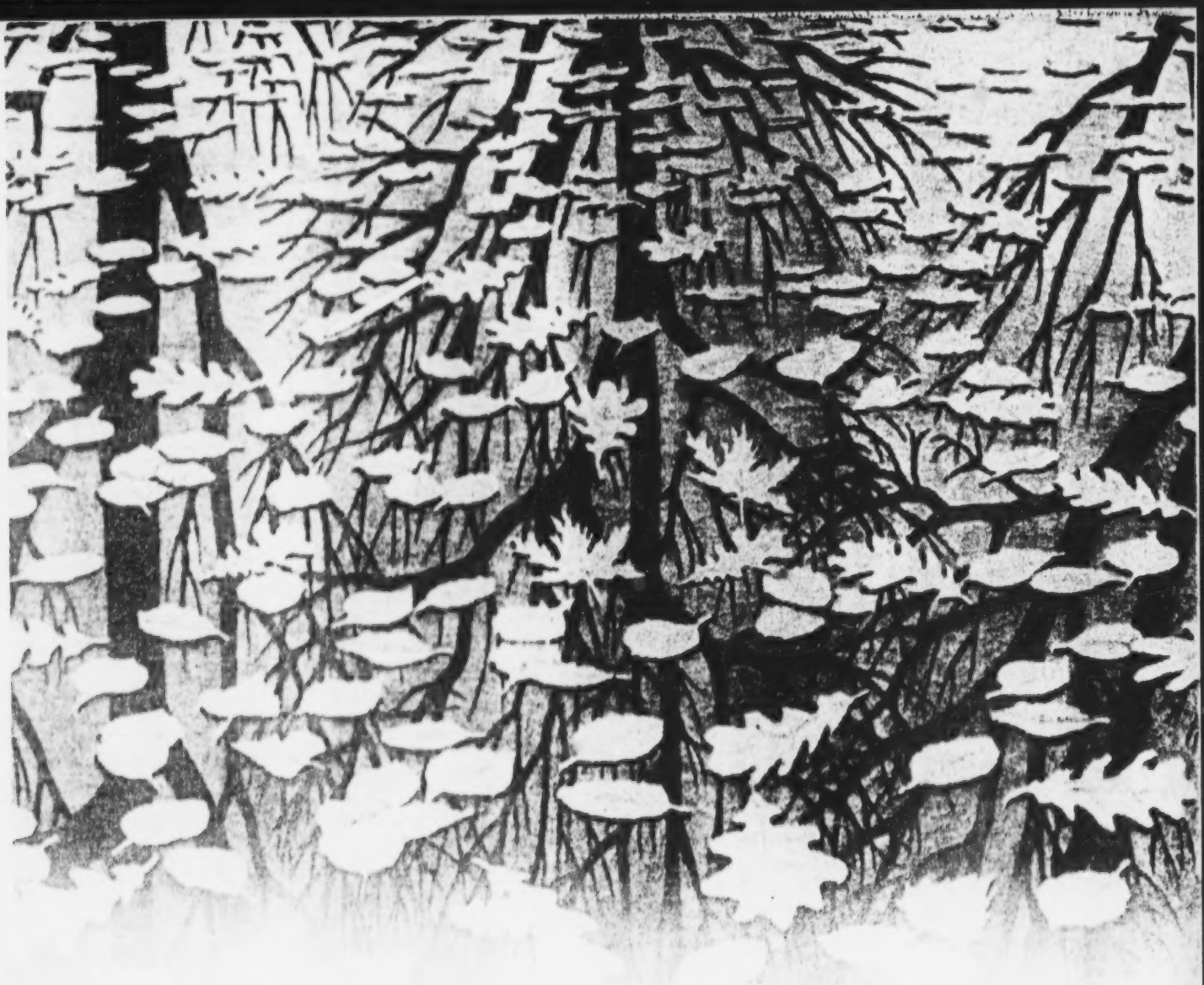

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